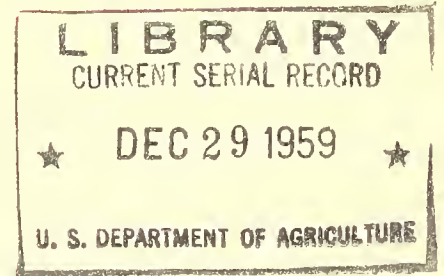


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General Report 69
November 1959



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x **INTEGRATED DAIRY OPERATIONS**

THROUGH FARMER COOPERATIVES x

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BY ANNE L. GESSNER,²
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U. S. DEPARTMENT OF AGRICULTURE

FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Joseph G. Knapp, Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies, confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

Acknowledgment is made to the 981 dairy cooperatives that furnished the basic information for this study; to Stanley F. Krause, Chief, Dairy Branch, Marketing Division, for assistance in planning and analysis; and to Kelsey B. Gardner, Director, Management Services Division, for general supervision and planning. For their substantial contributions to the preparation of this report, acknowledgment is also due William J. Monroe, James B. Roof, and George C. Tucker, Dairy Branch; and Elizabeth J. Simmons and Florence L. Parker, History and Statistics Branch.

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Highlights

Because of the increasing interest of farmer cooperatives in further economic integration, Farmer Cooperative Service made this study to determine the types and extent of integrated dairy operations provided for farmers by their cooperatives.

The progress of cooperatives in integrating their activities is indicated by the data summarized in this report on the quantities of products handled and functions performed at the four major levels of operation. These are: (1) Receiving and bargaining, (2) manufacturing, (3) distributing at wholesale, and (4) distributing at retail.

Receiving and Bargaining

Dairy cooperatives performed one or more functions in the distribution of almost three-fifths of the 98 billion pounds of whole milk that farmers marketed through plants and dealers in the United States in 1957. This proportion of the whole milk was either actually delivered at their plants or covered in their bargaining transactions. Their physical receipts and bargaining transactions represented a total volume of more than 58 billion pounds of whole milk in 1957.

Cooperative receipts of over 189 million pounds of butterfat in cream represented 43 percent of the total handled by plants and dealers in the United States in 1957. Included in this cream is a very small amount marketed by bargaining transactions.

Over four-fifths of all dairy cooperatives received or bargained for only fluid products such as whole milk, cream, and skim milk. The remaining one-fifth of these associations received some manufactured products purchased from other cooperatives or other firms, in addition to their receipts of fluid products.

Manufacturing

A little over three-fourths of all dairy cooperatives manufactured at least one or more dairy products in 1957.

The major dairy products cooperatives manufactured in 1957 included creamery butter, American cheddar cheese, cottage cheese, other cheese, condensed skim milk, nonfat dry milk, dry buttermilk, dry whole milk, and ice cream.

Cooperative production of creamery butter in 1957 amounted to 825

million pounds and represented almost three-fifths of the total production of slightly more than 1.4 billion pounds in the United States. Almost one-half of all of the cooperatives that manufactured dairy products produced butter only in 1957.

Cooperatives produced 215 million pounds of American cheddar cheese in 1957, representing a little more than 23 percent of the total of 924 million pounds produced in the United States.

Cooperatives were less important in the production of cottage cheese (curd or creamed). Their total production in 1957 was a little over 91 million pounds, representing slightly more than 7 percent of the United States total production of 1.2 billion pounds.

The cooperative production of other types of cheese included primarily Swiss, and small amounts of brick, munster, and limburgger. Their total production of these other types of cheese amounted to more than 36 million pounds in 1957 and represented almost 8 percent of the United States total of more than 483 million pounds.

Cooperatives manufactured more than 102 million pounds of condensed skim milk (sweetened and unsweetened), representing almost 14 percent of the United States total of more than 752 million pounds.

Cooperatives played a major role in the production of nonfat dry milk, including nonfat dry milk for animal feed. Their total production in 1957 of 1.25 billion pounds amounted to almost three-fourths of the United States total production of 1.69 billion pounds.

In the production of dry butter-milk, cooperatives were relatively important in 1957. They produced 49 million pounds, representing almost 70 percent of the total production in the United States of 70.3 million pounds.

Other dairy products manufactured by cooperatives in 1957 included 15 million pounds of dry whole milk, representing about 14 percent of the total United States production, and 26 million gallons of ice cream, representing only 4 percent of the United States total.

Wholesaling

The major dairy products distributed by cooperatives at wholesale included whole milk, cream, skim milk, buttermilk, chocolate milk, butter, American cheddar cheese, cottage cheese, other cheese, ice cream, nonfat dry milk, condensed skim milk, dry buttermilk and dry whole milk. The data show clearly that the distribution activities of dairy cooperatives are principally at the wholesale level; their entry into retailing has been limited in extent.

In 1957, cooperatives distributed at wholesale over 38 billion pounds of whole milk, representing all but 2.5 percent of their distribution of this fluid product. This wholesale distribution included whole milk that was not physically handled by cooperatives in their bargaining transactions. The major part of this wholesale distribution was in bulk form, with only a little over 2 billion pounds distributed in containers.

The total amount of cream distributed by cooperatives at wholesale

in 1957 was estimated at more than 138 million pounds on an average butterfat basis. This represented a little more than 98 percent of their total distribution of butterfat in cream. A substantial amount of this cream sold at wholesale was in containers. On a butterfat basis, the cream in containers amounted to more than 28 million pounds and represented one-fifth of the total butterfat in cream distributed at wholesale.

Almost all of the fluid skim milk cooperatives distributed in 1957 was sold at wholesale. Their total wholesale volume was 3.7 billion pounds, with less than 83 million pounds sold in containers.

Cooperatives distributed at wholesale almost 82 million quart equivalents of buttermilk. This represented 90 percent of their total distribution of buttermilk.

Their distribution at wholesale of chocolate milk amounted to more than 38 million quart equivalents, representing 84 percent of their total distribution of this product.

Cooperatives marketed at wholesale over 757 million pounds of creamery butter in 1957, representing about 93 percent of their total sales.

The wholesale volume of American cheddar cheese represented more than 98 percent of total sales by cooperatives in 1957 and amounted to a little over 212 million pounds.

Cooperative sales of cottage cheese (curd or creamed) at wholesale amounted to almost 85 million pounds and represented 88 percent of their total distribution in 1957.

All but 3 percent of their total sales of 38 million pounds of other cheese and all but 1 percent of their total sales of ice cream amounting to 31 million gallons were made at wholesale in 1957.

Sales of 1.2 billion pounds of non-fat dry milk, 85 million pounds of condensed skim milk, 42.3 million pounds of dry buttermilk, and 13.7 million pounds of dry whole milk were reported at wholesale.

Retailing

About 52 percent of all dairy cooperatives made some sales at retail in 1957. But the proportion of fluid and manufactured dairy products sold at retail was relatively small.

The quantities of the major fluid products sold at retail and their percentages of total cooperative sales of each product were: Whole milk, 960 million pounds, representing 2.5 percent; butterfat in cream, 2.5 million pounds, representing 1.8 percent; fluid skim milk, 30 million pounds, less than 1 percent; buttermilk, 9 million quart equivalents, 10 percent; chocolate milk, 7 million quart equivalents, 16 percent.

In the distribution of manufactured dairy products by cooperatives, the major products, quantities, and percentages of total cooperative sales that were made at retail in 1957 were: Creamery butter, almost 59 million pounds, representing over 7 percent; American cheddar cheese, almost 4 million pounds, 1.7 percent; cottage cheese (curd or creamed), over 11 million pounds, 12 percent; other cheese, over 1 million pounds, 3 percent; and ice cream, 309,000 gallons, 1 percent.

Number of Cooperatives Included
in Study

Data for 1957 on these four levels of operation were obtained from 981 dairy cooperatives in a sample of 1,335 associations that received a questionnaire requesting detailed information on the quantities and kinds of dairy products handled at each level. The 981 dairy associations that furnished this detailed information represented 74 percent of the sample and 63 percent of the total number of 1,557 dairy cooperatives for which data are presented in this report. Estimates for the remaining 37 percent were compiled from operating statements and other data furnished in the annual survey of farmer cooperatives.

These 1,557 associations operated during the full 12 months of the 1957 fiscal year. Information was not requested from associations that discontinued in the 1957 fiscal year and had already been removed from the active list of Farmer Cooperative

Service at the time questionnaires were mailed. Some of the discontinued associations had been in process of liquidation for several months, while others operated for a short period in fiscal 1957 and then either merged or consolidated with other associations or liquidated. Their volume was small and would not greatly affect the accuracy of the volume data reported here.

The figure of 1,744 dairy cooperatives reported in the 1956-57 survey of farmer cooperatives included approximately 185 discontinued associations that either reported dollar volume for a short period of operation in 1956-57 or for which estimates were made because information on liquidation had not yet been received. It also included a few newly organized associations that reported membership. The 1956-57 survey covered fiscal years ended in the period July 1, 1956, through June 30, 1957, whereas the study reported here covers fiscal years ended in the 1957 calendar year.

Integrated Dairy Operations Through Farmer Cooperatives

by Anne L. Gessner

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Management Services Division

In recent years there has been an accelerated interest in the extent of integration in the business activities of dairy cooperatives.

The changes taking place in agriculture and in cooperative operations have stimulated this interest. Among these changes have been the increasing number of mergers and consolidations among dairy cooperatives, the trend toward increasingly higher production by fewer farmers, and the need for more efficient methods both on the farm and in the dairy plant.

There is increasing awareness also that greater attention must be given

to the possibilities of integrating and diversifying operations of farmer cooperatives so that the producer may be in a more advantageous position in marketing his farm products.

Since dairy products have continued for many years to represent the most important group of farm products marketed by cooperatives on the basis of dollar value, Farmer Cooperative Service selected dairy cooperatives as the first marketing group to be studied in developing information on the extent of integration among farmer cooperatives.

Dairy cooperative management, in making policy decisions on integration and diversification, requires more complete and precise information on the relative importance of the major cooperative services and functions performed in receiving, manufacturing, and distributing dairy products.

Purpose and Method of Study

The study covered dairy cooperatives only and supplied information on the following: (1) Quantities and types of products received or bargained for and number of cooperatives involved in these operations; (2) quantities and types of products manufactured by cooperatives and number of associations manufacturing these products; (3) quantities and types of products marketed at wholesale and retail and number of associations distributing these products; (4) number of cooperatives by production-size groups that processed each of the major types of manufactured dairy products; and (5) information on the proportion of dairy products cooperatives transported at various levels of operation in trucks they owned or leased.

While annual statistics are available on the number of farmer cooperatives handling dairy products and on the total sales value of these products, such statistics are limited in a number of respects. They provide no information on how far these cooperatives have integrated their operations through manufacturing, wholesaling, and retailing dairy products. Nor do they provide an accurate measure of the physical volumes of the various dairy products handled by cooperatives at different levels of operation.

If detailed information similar to that presented in this report is compiled periodically, it will provide the necessary benchmarks for measuring progress, growth, and relative importance of cooperatives in the dairy field.

Information for the nationwide study reported here came from a mail questionnaire returned by 981 cooperatives. These 981 respondent associations represented almost 74 percent of the 1,335 cooperatives to whom the questionnaire was mailed and 63 percent of the 1,557 cooperatives covered in the final estimates. Estimates for the remaining 37 percent of these associations were developed from operating statements or other data supplied by these associations in our annual survey of farmer cooperatives.

Information on each of the major dairy products received and bargained for by cooperatives is compared in this report with similar information compiled for all dairy firms in the United States in 1957¹. Data on the major products manufactured by cooperatives in 1957 are compared in this report with figures compiled on manufactured dairy products for all dairy manufacturing plants in the United States².

Comparisons could not be made on the volume of dairy products distributed at wholesale and retail by cooperatives with total distribution of dairy products in the United States as such data were not available.

This report discusses the principal integrated functions of dairy cooperatives in the order of re-

¹ Walters, H. M., and Le Grande, Charles W. *Milk, Farm Production, Disposition, and Income, 1957-58*. Agr. Mar. Ser., U. S. Dept. of Agr., Da 1-2 (59).

² Bormuth, W. D., and Wagner, R. J. *Production of Manufactured Dairy Products, 1957*, Agr. Mar. Ser., U. S. Dept. of Agr., Da 2-1 (58).

ceiving, manufacturing, and distributing dairy products as they are regarded as the logical order of

steps in following the marketing of dairy products from the farm to the consumer.

Number and State Location of Dairy Cooperatives

Data for 1957 were obtained from 981 dairy cooperatives in a sample of 1,335 associations that received a questionnaire requesting detailed information on the quantities and kinds of dairy products handled at each level of operation. The 981 associations that furnished this detailed information represented 74 percent of the sample and 63 percent of the total number of 1,557 dairy cooperatives for which data are presented in this report³. Estimates for the remaining 37 percent were compiled from operating statements and other data furnished in the annual survey of farmer cooperatives.

The State location of all dairy cooperatives included in the study is shown in the last column of table

1. Also shown in table 1 is the number of cooperatives in each State that manufactured each of the major dairy products, as well as the number of associations in each State that reported no manufacturing of dairy products in 1957.

This is the only table in the report that presents information on a State basis. Tables that follow giving quantity data on receiving and bargaining, manufacturing, and distributing dairy products show geographic areas only. Table 1 is presented at this point in order to provide the reader with a better understanding of the overall picture before progressing to quantitative analyses of the fluid and manufactured dairy products that cooperatives handled at each of the four major levels of operation.

Quantities of Fluid Products Received and Bargained for

In the following discussion, the quantities of whole milk and butterfat in cream received and bargained for by cooperatives in 1957 are analyzed

by geographic areas and compared with similar data compiled for all dairy firms that were operating in the United States.

³ These 1,557 associations operated during the full 12 months of the 1957 fiscal year. Information was not requested from associations that discontinued in the 1957 fiscal year and had already been removed from the active list of Farmer Cooperative Service at the time questionnaires were mailed. Some of the discontinued associations had been in process of liquidation for several months, while others operated for a short period in fiscal 1957 and then either merged or consolidated with other associations or liquidated. Their volume was small and would not greatly affect the accuracy of the volume data reported here. The figure

of 1,744 dairy cooperatives reported in the 1956-57 survey of farmer cooperatives included approximately 185 discontinued associations that either reported dollar volume for a short period of operation in 1956-57 or for which estimates were made because information on liquidation had not yet been received. It also included a few newly organized associations that reported membership. The 1956-57 survey covered fiscal years ended in the period July 1, 1956, through June 30, 1957. The study reported here, on the other hand, covers fiscal years ended in the 1957 calendar year.

TABLE 1.--Dairy cooperatives: Estimated number manufacturing major dairy products, not manufacturing, and total, by States and Geographic divisions, 1957

Geographic division and State	Number of dairy cooperatives manufacturing---										Number of associations reporting not manufacturing	Total number of dairy associations
	Creamery butter	American cheddar cheese	Cottage cheese (curd or creamed)	Other cheese ¹	Con-densed skim milk	Nonfat dry milk	Dry butter-milk	Dry whole milk	Ice cream			
Maine	1	--	--	--	--	--	--	--	--	--	1	2
New Hampshire	--	--	1	--	--	--	--	--	--	2	1	4
Vermont	3	1	1	--	1	2	1	1	1	1	12	16
Massachusetts	1	--	--	--	--	2	--	--	--	--	5	7
Rhode Island	--	--	--	--	--	--	--	--	--	--	1	1
Connecticut	--	--	1	--	--	--	--	--	--	--	3	4
New England	5	1	3	--	1	4	1	1	1	3	23	34
New York	4	5	2	--	2	4	1	1	--	2	89	98
New Jersey	--	--	--	--	--	--	--	--	--	--	2	2
Pennsylvania	1	--	6	--	2	2	--	--	--	7	23	32
Middle Atlantic	5	5	8	--	4	6	1	1	--	9	114	132
Ohio	4	1	3	6	1	4	1	1	--	2	22	30
Indiana	6	1	2	2	2	4	3	--	--	--	9	15
Illinois	7	12	4	10	--	4	2	--	--	5	15	42
Michigan	20	6	11	1	2	14	7	2	2	5	4	27
Wisconsin	99	162	11	46	2	43	20	6	5	5	28	318
East North Central	136	182	31	65	7	69	33	8	17	17	78	432
Minnesota	399	7	7	--	4	41	30	4	8	24	24	432
Iowa	177	16	6	1	1	20	23	1	25	7	7	191
Missouri	7	5	2	--	2	1	2	--	2	5	5	14
North Dakota	26	--	1	3	1	1	2	--	6	6	6	33
South Dakota	34	--	--	--	--	1	2	--	7	9	9	44
Nebraska	16	--	1	--	--	1	2	--	2	5	5	21
Kansas	10	3	4	--	1	6	3	2	2	6	6	16
West North Central	669	31	21	4	9	71	64	7	52	62	62	751
Delaware	--	--	--	--	--	--	--	--	--	--	--	--
Maryland	--	--	1	--	--	1	--	--	1	2	2	3
District of Columbia	--	--	--	--	--	--	--	--	--	--	--	--
Virginia	3	--	2	--	1	2	1	--	1	13	13	16
West Virginia	--	--	1	--	--	--	--	--	--	--	--	1
North Carolina	4	1	4	--	2	2	1	--	5	5	5	13
South Carolina	--	--	--	--	--	--	--	--	1	2	2	3
Georgia	1	--	2	--	--	2	--	--	2	8	8	13
Florida	--	--	2	--	--	--	--	--	1	3	3	5
South Atlantic	8	1	12	--	3	7	2	--	11	33	33	54

TABLE 1.--Dairy cooperatives: Estimated number manufacturing major dairy products, not manufacturing, and total, by States and Geographic divisions, 1957--Continued

Geographic division and State	Number of dairy cooperatives manufacturing--										Number of associations reporting not manufacturing	Total number of dairy associations
	Creamery butter	American cheddar cheese	Cottage cheese (curd or creamed)	Other cheese ¹	Con-densed skim milk	Nonfat dry milk	Dry butter-milk	Dry whole milk	Ice cream			
Kentucky	--	--	--	--	--	--	--	--	--	4	4	
Tennessee	2	1	--	--	2	2	--	--	--	5	7	
Alabama	--	--	1	--	--	--	--	1	--	--	1	
Mississippi	1	--	1	--	--	1	--	--	--	6	7	
East South Central	3	1	2	--	2	3	--	1	1	15	19	
Arkansas	--	--	--	--	--	--	--	--	--	1	1	
Louisiana	--	--	--	--	--	--	--	--	--	3	3	
Oklahoma	4	--	2	--	--	2	2	2	--	2	6	
Texas	1	2	--	--	2	2	--	--	--	5	9	
West South Central	5	2	2	--	2	4	2	2	2	11	19	
Montana	7	1	1	--	--	--	--	4	--	--	7	
Idaho	7	3	2	1	--	5	1	4	4	1	9	
Wyoming	2	--	1	1	--	2	--	--	--	--	2	
Colorado	3	--	--	--	--	--	--	1	--	5	8	
New Mexico	--	--	--	--	--	--	--	--	--	--	--	
Arizona	--	--	1	--	--	--	--	--	--	2	3	
Utah	3	4	3	1	1	3	1	2	2	7	10	
Nevada	1	--	1	--	--	--	--	--	--	1	2	
Mountain	23	8	9	3	1	10	1	11	11	16	41	
Washington	14	3	10	2	7	6	1	14	4	4	19	
Oregon	11	14	6	1	--	4	2	7	3	3	27	
California	9	--	4	--	2	7	--	3	18	18	29	
Pacific	34	17	20	3	9	17	3	24	24	24	75	
United States	888	248	108	75	38	191	107	130	377	377	1,557	

¹ Not including cheddar and cottage cheese.

Whole Milk

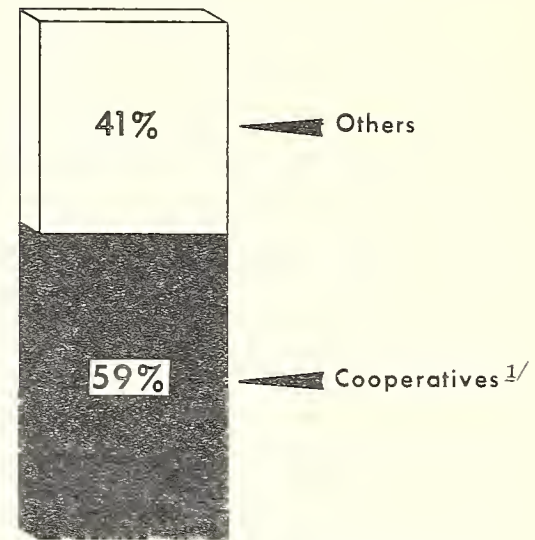
19.5 billion pounds, representing a little more than 58 percent of the total

Cooperatives either received at their plants or bargained for almost three-fifths of the milk farmers marketed through plants and dealers in the United States in 1957 as shown in table 2 and figure 1.

In the West North Central area cooperatives accounted for more than 77 percent of all milk delivered to plants and dealers in that area in 1957. This area includes Minnesota and Iowa where dairy cooperatives have long been important. Cooperatives in this area handled over 12.3 billion pounds of milk through both physical receipts and bargaining transactions.

In the East North Central division, the total volume of milk cooperatives handled through physical receipts and bargaining transactions amounted to

Figure 1
Fluid Milk Marketed Through Cooperatives and Other Businesses, 1957



Total U. S. - 98.4 Billion Pounds

^{1/}Includes all milk physically handled, processed, manufactured, and sold, as well as milk marketed through bargaining transactions.

TABLE 2. --Volume of whole milk received and bargained for by cooperatives compared with total delivered to plants and dealers in the United States, 1957¹

Geographic division	Whole milk		
	Handled by cooperatives ²	Total delivered to plants and dealers in the United States	Cooperative percent of total
	<i>Million pounds</i>	<i>Million pounds</i>	<i>Percent</i>
North Atlantic ³	13,239	19,783	66.9
East North Central	19,493	33,485	58.2
West North Central	12,307	15,945	77.2
South Atlantic	3,299	6,584	50.1
South Central	3,738	9,847	38.0
Mountain	1,995	3,473	57.4
Pacific	3,967	9,261	42.8
United States	58,038	98,378	59.0

¹ Cooperative data were tabulated by association headquarters and not by plant location.

² Handled either by physical receipt or by bargaining transactions. Amounts shown include both amounts marketed directly for farmers and small amounts purchased from other concerns. They do not include inter-association transactions except possibly small amounts reported in purchases from other concerns.

³ Includes the New England and Middle Atlantic geographic areas as defined by the Bureau of the Census. Data on total deliveries of whole milk to plants and dealers were not published separately for these two areas.

TABLE 3. --Volume of cream received by cooperatives compared with total delivered to plants and dealers in the United States, 1957¹

Geographic division	Cream		
	Received by cooperatives ²	Total delivered to plants and dealers in the United States	Cooperative percent of total
	<i>Butterfat</i> <i>1,000 pounds</i>	<i>Butterfat</i> <i>1,000 pounds</i>	<i>Percent</i>
North Atlantic ³	58	5,570	1.0
East North Central	13,516	46,450	29.1
West North Central	162,775	330,000	49.3
South Atlantic	2,408	8,430	28.6
South Central	5,701	27,510	20.7
Mountain	1,601	17,290	9.3
Pacific	3,113	7,970	39.1
United States	189,172	443,220	42.7

¹ Cooperative data were tabulated by association headquarters and not by plant location.

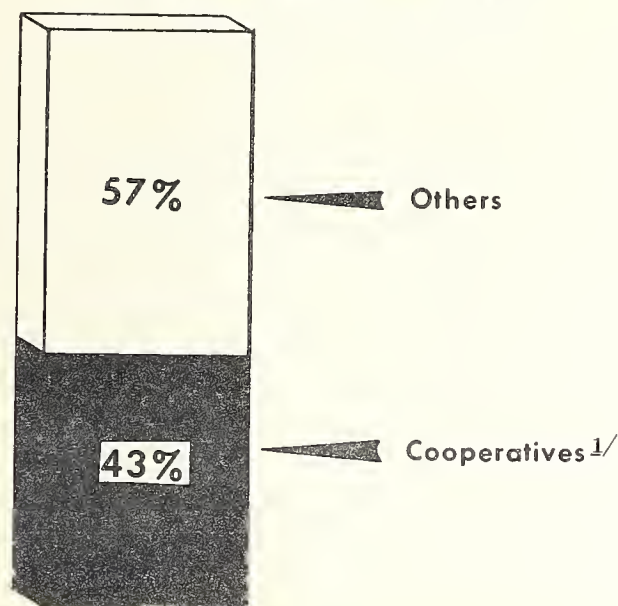
² Receipts from farmers only. Includes a very small amount of cream marketed by bargaining transactions.

³ Includes the New England and Middle Atlantic geographic areas as defined by the Bureau of the Census. Data on total deliveries of cream to plants and dealers were not published separately for these two areas.

delivered to plants and dealers in that area. This area includes Wisconsin

where cooperatives have played an important role in the dairy industry for many years.

Figure 2
Cream Marketed Through Cooperatives and Other Businesses, 1957



Total U. S. - 443.2 Million Pounds Butterfat

^{1/} Includes a very small amount marketed by bargaining transactions.

Table 2 shows that cooperatives in the South Central area accounted for the smallest percentage in any geographic area. Their total of over 3.7 billion pounds represented 38 percent of total deliveries of more than 9.8 billion pounds to plants and dealers in that area.

Butterfat in Cream

Cooperative plants received over 189 million pounds of butterfat in cream⁴ in 1957 (table 3). This amounted to about 43 percent of the total receipts of 443.2 million pounds by all plants and dealers throughout the United States (figure 2).

⁴ Includes a very small amount of cream marketed by bargaining transactions.

Butter manufacture has changed rapidly from the use of farm-separated cream to factory-separated cream. Less than one-half of the butter produced in the United States is now manufactured from farm-separated cream.

Cooperatives in the West North Central area had a volume of almost 163 million pounds, representing just under one-half of total deliveries of 330 million pounds of butterfat in cream to plants and dealers in that area in 1957.

Milk and Cream Retailed and Used by Farmers

In addition to the volume marketed through their cooperatives and through other plants and dealers, farmers also marketed a large amount of milk and cream individually. They retailed directly to consumers milk and cream amounting to a milk equivalent of 2.3 billion pounds in 1957. This amount may be added to the 98.4 billion

pounds of milk farmers marketed through plants and dealers throughout the United States in 1957 in order to obtain the total milk equivalent farmers marketed -- not including deliveries of 443.2 million pounds of butterfat in cream to plants and dealers, representing a milk equivalent of 11.9 billion pounds.

Farmers used another 10.3 billion pounds of milk on their farms for their own milk, cream, and butter needs. In addition, they fed more than 3 billion pounds of milk to calves on their farms. The combined total of milk and cream marketed and used on the farm represented a production on a milk equivalent basis of almost 126 billion pounds in 1957.

Although the study reported here deals with marketing dairy products through farmer cooperatives, this additional information on volume retailed and used by farmers gives a more complete picture of the farmer's place in producing, using, and marketing dairy products.

Quantities of Dairy Products Manufactured

The major dairy products cooperatives manufactured in 1957 included creamery butter, American cheddar cheese, cottage cheese, other cheese, condensed skim milk, nonfat dry milk, dry buttermilk, dry whole milk, and ice cream.

Creamery Butter

Cooperatives produced a total of almost 825 million pounds of butter in 1957 (table 4). This represented 58 percent of the total production of slightly more than 1.4 billion pounds in the United States (figure 3).

In the West North Central area, cooperatives were particularly important in manufacturing butter. Their total production of almost 512 million pounds accounted for two-thirds of the total production of butter in that area. Moreover, their production in this area accounted for a little more than three-fifths of the total amount of 825 million pounds of butter that cooperatives produced in the United States as a whole. The importance of dairy cooperatives in Minnesota and Iowa, of course, is reflected in this large volume figure for the West North Central region.

In the East North Central geographic division, cooperatives had a total production of 225 million pounds of butter, representing almost 54 percent of the total amount all manufacturers produced in that area. Wisconsin accounted for almost four-fifths of the total production of cooperatives in this area.

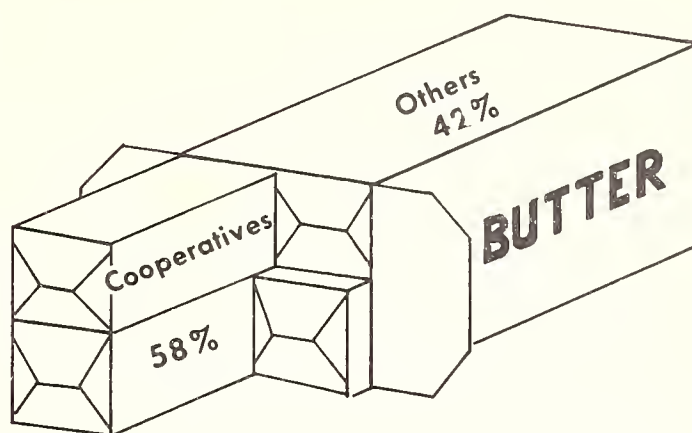
In the Pacific area, cooperative production of 36 million pounds represented a little over 58 percent of the total production of about 62 million pounds of butter by all manufacturers in the area.

The Mountain area had a total production of butter of more than 59 million pounds, with cooperatives accounting for 33 million pounds -- almost 56 percent of the area's total production.

Although cooperatives in the New England area accounted for almost 68 percent of the total production of

Figure 3

Creamery Butter Manufactured, 1957



Total U. S. - 1,413 million pounds

butter in the area, their actual production was only 1.4 million pounds. Total production by all manufacturers in this area was 2.1 million pounds.

TABLE 4. -- Creamery butter manufactured by cooperatives compared with the United States total, 1957¹

Geographic division	Creamery butter		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Percent</i>
New England	1,432	2,123	67.5
Middle Atlantic	2,461	26,238	9.4
East North Central	224,955	419,313	53.6
West North Central	511,722	766,604	66.8
South Atlantic	4,959	12,277	40.4
South Central	10,235	65,260	15.7
Mountain	33,029	59,203	55.8
Pacific	36,044	61,825	58.3
United States	824,837	1,412,843	58.4

¹ Cooperative data were tabulated by association headquarters and not by plant location.

American Cheddar Cheese

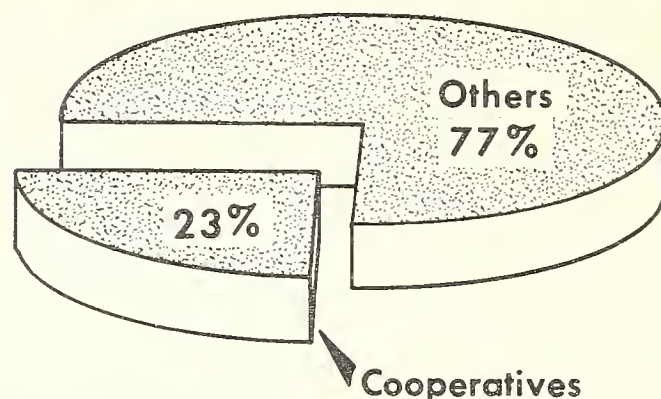
Cooperatives produced 215 million pounds of American cheddar cheese in 1957. Their production represented a little more than 23 percent of the total of 924 million pounds produced in the United States (table 5 and figure 4).

Cooperatives in the East North Central area, with a total production of more than 133 million pounds, accounted for a little over one-fourth of the total production of American cheddar cheese in that area and for a little more than three-fifths of the production of all cooperatives in the United States. Cooperatives in Wisconsin accounted for more than 118 million pounds of American cheddar cheese, representing almost 89 percent of the total cooperatives produced in the East North Central area and over 55 percent of the total all cooperatives produced in the United States.

In the West North Central area, cooperatives manufactured almost 43 million pounds of American cheddar cheese. Their production was

Figure 4

American Cheddar Cheese Manufactured, 1957



Total U. S. - 924 million pounds

23 percent of the total of almost 186 million pounds produced in the area.

In the Pacific area, cooperatives produced more than 19 million pounds of American cheddar cheese, or almost 91 percent of the total production of over 21 million pounds in the area. Oregon accounted for almost 91 percent of the total of 19 million pounds cooperatives produced in this area and Washington accounted for the remainder of less

TABLE 5. -- American cheddar cheese manufactured by cooperatives compared with the United States total, 1957¹

Geographic division	American cheddar cheese		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Percent</i>
New England	250	6,065	4.1
Middle Atlantic	5,662	24,418	23.2
East North Central	133,458	521,749	25.6
West North Central	42,848	185,823	23.1
South Atlantic	53	7,221	0.7
South Central	4,162	135,246	3.1
Mountain	9,130	22,386	40.8
Pacific	19,167	21,121	90.7
United States	214,730	924,029	23.2

¹ Cooperative data were tabulated by association headquarters and not by plant location.

TABLE 6. --Cottage cheese manufactured by cooperatives compared with the United States total, 1957¹

Geographic division	Cottage cheese (curd or creamed)		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Percent</i>
New England	4,227	54,566	7.7
Middle Atlantic	10,231	216,263	4.7
East North Central	26,819	382,197	7.0
West North Central	18,589	131,707	14.1
South Atlantic	2,829	53,947	5.2
South Central	1,190	100,366	1.2
Mountain	7,832	51,144	15.3
Pacific	19,649	252,233	7.8
United States	91,366	1,242,423	7.4

¹ Cooperative data were tabulated by association headquarters and not by plant location.

than 10 percent. No production of American cheddar cheese was reported by cooperatives in California.

Cottage Cheese (Curd or Creamed)

Cooperatives produced a much smaller volume of cottage cheese than of American cheddar cheese. Although cottage cheese is classified as a manufactured product, its manufacture and marketing are generally associated closely with marketing fluid milk. The role of cooperatives in the actual processing and distribution of fluid milk is much less important than in processing a number of the major manufactured dairy products.

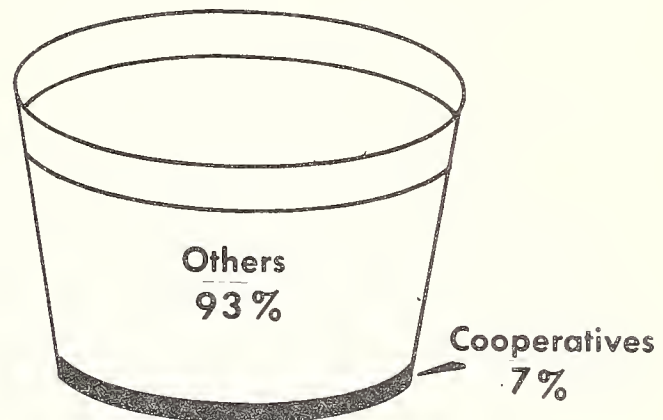
Cooperatives produced more than 91 million pounds of cottage cheese, including curd and creamed, in 1957. This represented a little over 7 percent of the total United States production of 1.2 billion pounds (table 6 and figure 5).

Cooperatives in the East North Central area produced about 27 mil-

lion pounds of cottage cheese, representing 7 percent of the total production in the area.

In the Pacific area, cooperatives produced almost 20 million pounds of cottage cheese, representing about 8 percent of the total produced in the area.

Figure 5
Cottage Cheese Manufactured,
1957



Total U. S. -- 1,242 million pounds
(Curd or Creamed)



Cooperatives manufactured 23 percent of the total United States production of American cheddar cheese amounting to 924 million pounds.

The West North Central area ranked next in the cooperative production of cottage cheese, with almost 19 million pounds, representing over 14 percent of the area total.

Cooperatives in the Mountain area had the highest area percentage, with more than 15 percent of the area total, but their actual production of cottage cheese was less than 8 million pounds.

Other Cheese

In addition to American cheddar cheese and cottage cheese, cooper-

atives in 1957 manufactured over 36 million pounds of other types of cheese, including primarily Swiss and small amounts of brick, munster, and limburgger. Their total production of these other types of cheese represented almost 8 percent of the United States total of more than 483 million pounds (table 7).

Cooperatives in the East North Central area produced 28 million pounds of these other types of cheese. This represented more than three-fourths of the total production of other cheese (excluding American cheddar and cottage) by all cooperatives in the United States in 1957,

but less than 10 percent of the production of all manufacturers in that area. Wisconsin accounted for 19 million pounds of the cooperative production in the East North Central area and the major part of this production was Swiss cheese.

Cooperatives in the Mountain area accounted for more than one-fourth of the production of these other types of cheese in that area, but their actual production was only slightly more than 6 million pounds.

Condensed Skim Milk

Cooperatives produced more than 102 million pounds of condensed skim milk (sweetened and unsweetened), representing almost 14 percent of the United States total of more than 752 million pounds (table 8).

Cooperative production of more

than 32 million pounds in the West North Central area accounted for 35 percent of the area total. Cooperative production in this area represented almost one-third of the total production of all cooperatives in the United States. Kansas accounted for almost two-fifths and Minnesota for one-third of the cooperative production in the West North Central area.

Cooperatives in the East North Central area produced almost 23 million pounds of condensed skim milk, or about 9 percent of the area total. Indiana accounted for a little over two-thirds of the cooperative production in this area.

Nonfat Dry Milk

Cooperatives were of major importance in the manufacture of nonfat dry milk, including nonfat dry milk for animal feed. Their total production in 1957 of 1.25 billion pounds

TABLE 7. --Other cheese (excluding American cheddar and cottage) manufactured by cooperatives compared with United States total, 1957¹

Geographic division	Other cheese (excluding American cheddar and cottage)		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Percent</i>
New England	--	7,710	--
Middle Atlantic	--	86,884	--
East North Central	27,967	295,293	9.5
West North Central	454	33,758	1.3
South Atlantic	--	11	--
South Central	--	18,796	--
Mountain	6,035	23,074	26.2
Pacific	1,596	17,874	8.9
United States	36,052	483,400	7.5

¹ Cooperative data were tabulated by association headquarters and not by plant location.

TABLE 8. --Condensed skim milk manufactured by cooperatives compared with the United States total, 1957¹

Geographic division	Condensed skim milk (sweetened and unsweetened)		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Percent</i>
New England	182	16,015	1.1
Middle Atlantic	11,999	137,819	8.7
East North Central	22,966	258,389	8.9
West North Central	32,411	92,543	35.0
South Atlantic	6,887	53,040	13.0
South Central	16,527	84,569	19.5
Mountain	621	9,089	6.8
Pacific	10,864	100,989	10.8
United States	102,457	752,453	13.6

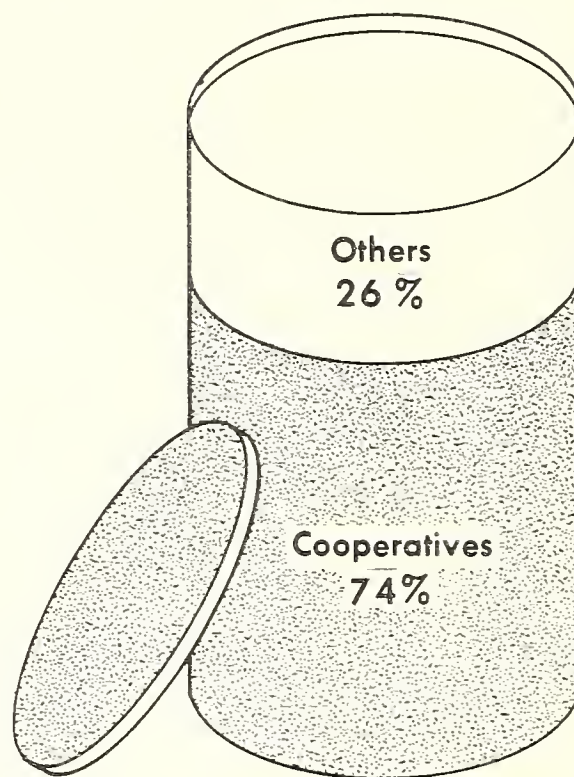
¹ Cooperative data were tabulated by association headquarters and not by plant location.

amounted to almost three-fourths of the United States total production of 1.69 billion pounds (table 9 and figure 6).

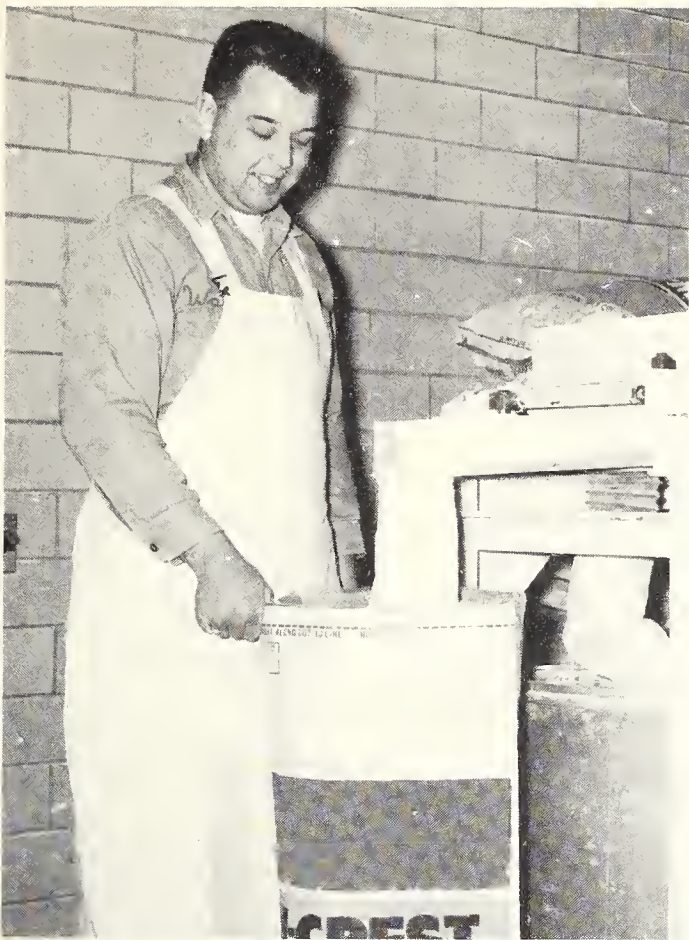
Cooperatives in the West North Central area with a production of nonfat dry milk amounting to 545 million pounds accounted for 85 percent of the area total. In the East North Central area, cooperatives produced 541 million pounds of nonfat dry milk, representing a little over 80 percent of the total production in that area.

The strong position of cooperatives in these two North Central areas is better understood when the geographic concentration of nonfat dry milk processing is recognized. The West North Central and East North Central areas combined accounted for almost 78 percent of all nonfat dry milk made in the United States in 1957 and dairy cooperatives are very important in both areas. Cooperatives in Wisconsin accounted for almost 86 percent of the cooperative production

Figure 6.
**Nonfat Dry Milk Manufactured
1957**



**Total U. S. - 1.69 billion pounds
(Includes animal feed)**



of the cooperative total in the West North Central area.

In the Mountain area cooperatives, with a total production of nonfat dry milk amounting to more than 63 million pounds, accounted for all but 5 percent of the area total.

In the Pacific area the cooperative production of almost 43 million pounds of nonfat dry milk represented just a little under one-half of the total production in that area.

Dry Buttermilk

Cooperatives were relatively important in the production of dry buttermilk. They produced 49 million pounds, representing almost 70 percent of the total production in the United States of 70.3 million pounds (table 10 and figure 7).

In the West North Central geographic division, cooperatives produced over 30 million pounds of dry buttermilk, representing 68 percent of the area total. Minnesota accounted

Cooperatives had an important role in producing nonfat dry milk.

in the East North Central area and those in Minnesota for 76 percent

TABLE 9. --Nonfat dry milk manufactured by cooperatives compared with the United States total, 1957¹

Geographic division	Nonfat dry milk (including animal feed)		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Percent</i>
New England	8,286	28,441	29.1
Middle Atlantic	30,932	150,023	20.6
East North Central	540,640	672,268	80.4
West North Central	544,695	643,691	84.6
South Atlantic	9,067	20,463	44.3
South Central	10,660	25,469	41.9
Mountain	63,189	66,466	95.1
Pacific	42,853	88,078	48.7
United States	1,250,322	1,694,899	73.8

¹ Cooperative data were tabulated by association headquarters and not by plant location.

TABLE 10. --Dry buttermilk manufactured by cooperatives compared with the United States total, 1957¹

Geographic division	Dry buttermilk		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Percent</i>
New England	1	1	100.0
Middle Atlantic	79	697	11.3
East North Central	17,672	22,499	78.5
West North Central	30,023	44,040	68.2
South Atlantic	246	(2)	--
South Central	701	1,780	39.4
Mountain	138	360	38.3
Pacific	147	943	15.6
United States	49,007	70,320	69.7

¹ Cooperative data were tabulated by association headquarters and not by plant location.

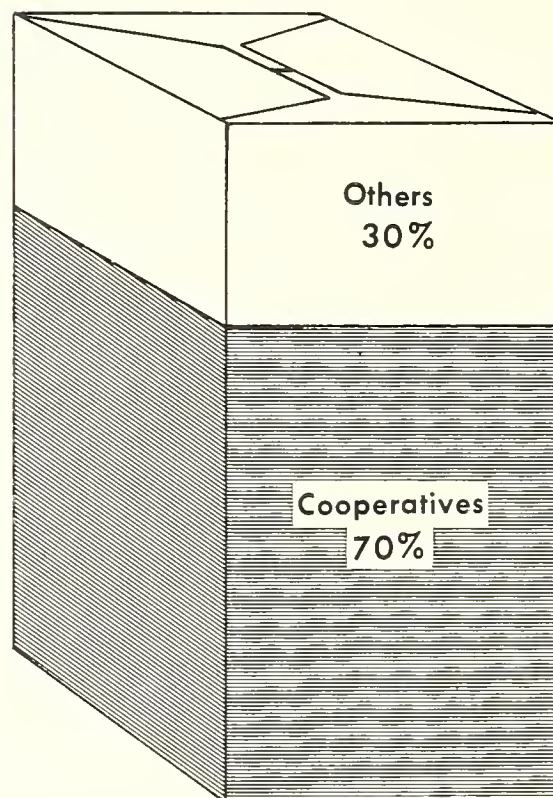
² Not available.

for almost 21 million pounds of the cooperative production, or 69 percent of the total produced by cooperatives in this area.

In the East North Central area, cooperatives produced almost 18 million pounds of dry buttermilk in 1957, representing 79 percent of the area total of more than 22 million pounds. Wisconsin accounted for almost three-fourths of the total production of cooperatives in this area.

The concentration of the production of dry buttermilk in the East North Central and West North Central areas is similar to that shown in the production of nonfat dry milk previously discussed in this report. These two North Central areas accounted for 66.5 million pounds out of the total United States production of 70.3 million pounds of dry buttermilk, or just a little less than 95 percent of the total production by all plants in the United States.

Figure 7
Dry Buttermilk Manufactured
1957



Total U. S. - 70.3 million pounds

Dry Whole Milk

Cooperatives manufactured about 15 million pounds of dry whole milk in 1957 (table 11). This was about 14 percent of the total United States production of 110 million pounds. The major portion of this production of dry whole milk occurred in the East North Central area. Cooperatives in this area produced almost 13 million pounds of dry whole milk. This represented about 16 percent of the area total and 85 percent of the total production of all cooperatives in the United States. Cooperatives in Wisconsin accounted for 90 percent of the cooperative production in the East North Central area.

Ice Cream

Ice cream was not an important item in the manufactured dairy products cooperatives produced in 1957. Ice cream is somewhat like cottage

cheese in often being closely associated with fluid milk operations. Cooperative production amounted to about 26 million gallons, representing only 4 percent of the total production of 650 million gallons in the United States in 1957 (table 12 and figure 8).

Highest percentage accounted for in any area by cooperatives was 10 percent in the Pacific area where cooperatives produced 6.9 million gallons. Production of cooperatives in the Middle Atlantic area was slightly higher with almost 7 million gallons, but this represented only a little over 4 percent of the area total.

Miscellaneous Manufactured Dairy Products

In addition to the major manufactured dairy products already discussed in detail, cooperatives manufactured more than 400 million

TABLE 11. --Dry whole milk manufactured by cooperatives compared with the United States total, 1957¹

Geographic division	Dry whole milk		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>Percent</i>
New England	317	317	100.0
Middle Atlantic	--	24,359	--
East North Central	² 12,595	80,103	15.7
West North Central	² 1,318	1,656	79.6
South Atlantic	--	465	--
South Central	--	13	--
Mountain	66	79	83.5
Pacific	533	2,932	18.2
United States	14,829	109,924	13.5

¹ Cooperative data were tabulated by association headquarters and not by plant location except where stated otherwise.

² Adjusted for plant location of two regional cooperatives.

TABLE 12. --Ice cream manufactured by cooperatives compared with the United States total, 1957¹

Geographic division	Ice cream		
	Manufactured by cooperatives	Total manufactured	Cooperative percent of total
	<i>1,000 gallons</i>	<i>1,000 gallons</i>	<i>Percent</i>
New England	219	45,063	0.5
Middle Atlantic	6,954	159,094	4.4
East North Central	4,466	152,409	2.9
West North Central	4,587	62,524	7.3
South Atlantic	1,313	77,033	1.7
South Central	449	65,585	0.7
Mountain	952	20,250	4.7
Pacific	6,885	67,915	10.1
United States	25,825	649,873	4.0

¹ Cooperative data were tabulated by association headquarters and not by plant location.

pounds of miscellaneous products as shown in table 13. These products included ice cream mix; whey, whey powder, and whey solids; condensed

whole milk; pharmaceutical feeding products; evaporated milk; condensed buttermilk; and a number of other products that were produced in small volume.

Figure 8
Ice Cream Manufactured, 1957

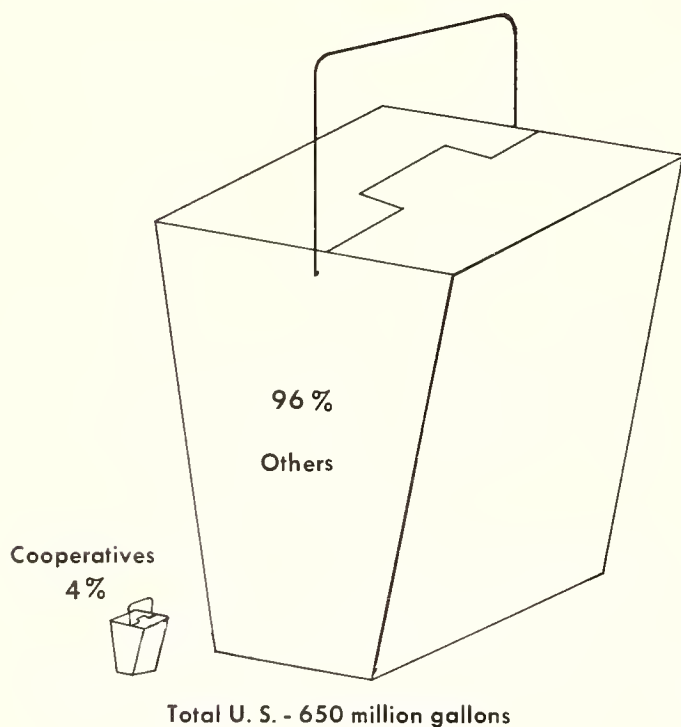


TABLE 13. --Miscellaneous dairy products manufactured by cooperatives, 1957

Miscellaneous dairy products	Quantity manufactured
	<i>1,000 pounds</i>
Ice cream mix	257,470
Whey, whey powder, and whey solids	50,657
Condensed whole milk	40,042
Pharmaceutical feeding products	29,220
Evaporated milk	12,019
Condensed buttermilk	10,292
Anhydrous milk fat	2,264
Sherbert mix	702
Ice cream mix powder	328
Ice milk	294
Yogurt	247
Milk concentrate	149
Ice milk mix	142
Sherbert	46
Unspecified	5
Total	403,877

Quantities of Fluid Milk and Manufactured Dairy Products Distributed at Wholesale and Retail

The discussions and tabulations that follow on each of the major fluid and manufactured dairy products deal with the quantities that cooperatives distributed on an adjusted basis after eliminating interassociation volume.

The fluid milk products dairy cooperatives distributed both at wholesale and retail in 1957 included whole milk, cream, skim milk, buttermilk, and chocolate milk. The major manufactured products they distributed at wholesale and retail included butter, American cheddar cheese, cottage cheese, other cheese (not including American cheddar or cottage), and ice cream. Manufactured products distributed primarily at wholesale by cooperatives included nonfat dry milk, condensed skim milk, dry buttermilk, and dry whole milk.

In eliminating intercooperative volume, the adjustments were not made on an individual association basis. It should be recognized, therefore, that the simplified procedure of deducting total intercooperative volume received from total amount distributed resulted in a slight overadjustment for some commodities because of amounts retained in inventory and not distributed. Therefore, the quantities shown in those areas and for those commodities where interassociation volume was high may be slightly lower than the actual quantities distributed.

Fluid Milk Products

The major fluid milk products cooperatives distributed in 1957 are shown in tables 14 to 18, inclusive,

according to percentages sold at wholesale and retail.

Whole Milk

Cooperatives distributed a total of 39.3 billion pounds of whole milk in 1957 either through actual physical handling or through bargaining transactions (table 14 and figure 9). In other words, they performed one or more functions in the movement of this volume of 39.3 billion pounds of milk from farmer patrons to ultimate consumers. Sales at wholesale in bulk represented the most important outlet and accounted for 92.1 percent of the total. Cooperatives distributed 5.4 percent at wholesale in containers. The remainder of 2.5 percent was distributed at retail. Sales in containers at wholesale and retail were reported in quart equivalents, but were converted in table 14 to a pound basis in order to facilitate comparisons. Although retail sales represented only 2.5 percent of the total volume distributed, the actual amount of whole milk sold at retail was almost 960 million pounds. The significance of sales of whole milk in bulk at wholesale is emphasized by the fact that such sales represented 62 percent of the 58 billion pounds of milk received or bargained for by cooperatives (table 2).

Cream

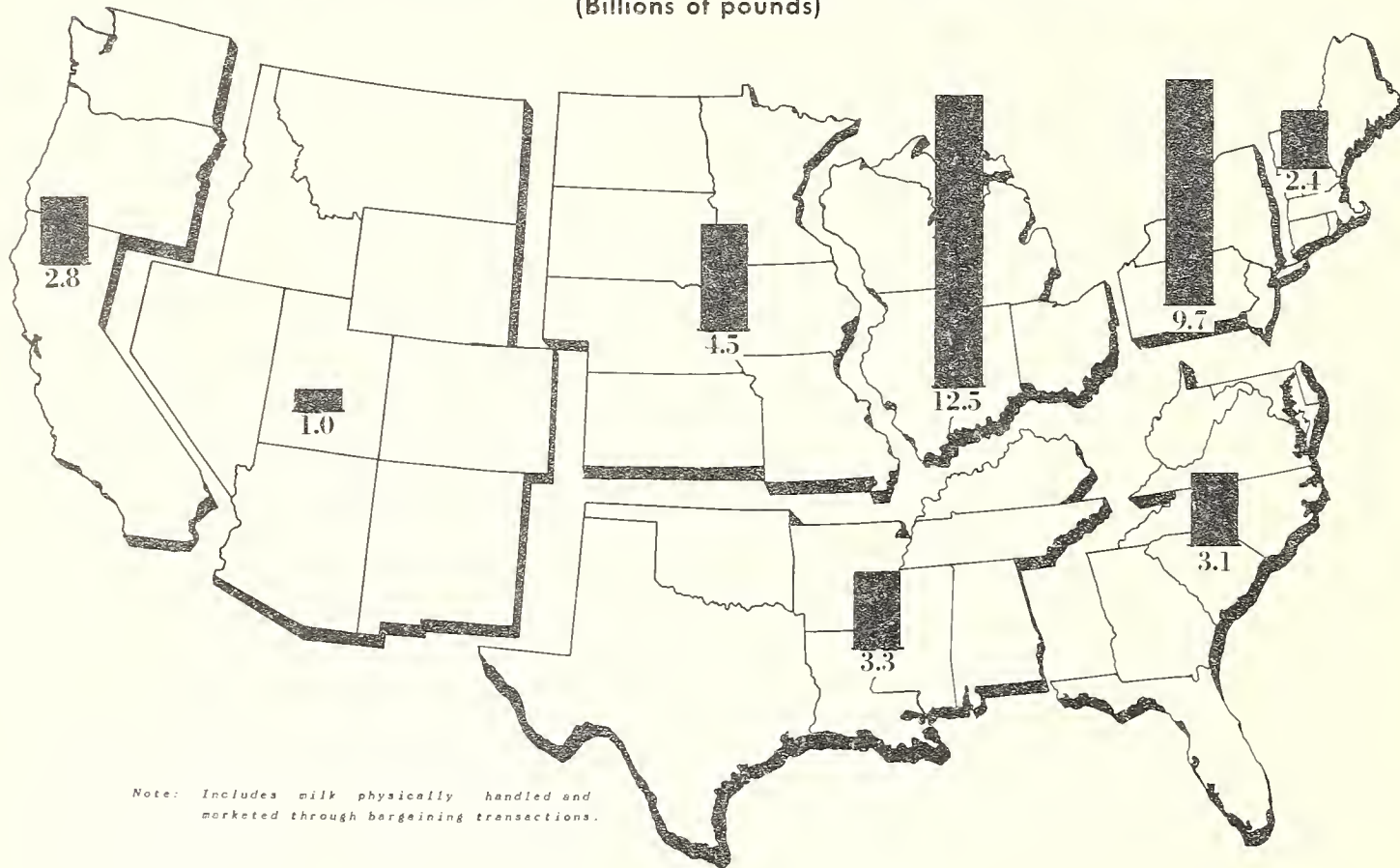
The total amount of cream distributed by cooperatives, on a butterfat basis, was almost 141 million

TABLE 14. --Whole milk distributed by cooperatives, by geographic areas, 1957¹

Geographic division	Wholesale				Retail		Total	
	Bulk		In containers		1, 000 pounds	Percent	1, 000 pounds	Percent
	1, 000 pounds	Percent	1, 000 pounds	Percent				
New England	2, 115, 867	89.6	190, 529	8.1	53, 632	2.3	2, 360, 028	100
Middle Atlantic	9, 044, 501	93.4	509, 157	5.2	135, 198	1.4	9, 688, 856	100
East North Central	11, 889, 922	95.4	379, 047	3.0	194, 936	1.6	12, 463, 905	100
West North Central	4, 137, 335	91.9	259, 073	5.7	107, 825	2.4	4, 504, 233	100
South Atlantic	2, 632, 359	84.0	184, 906	5.9	317, 088	10.1	3, 134, 353	100
South Central	3, 192, 505	97.8	54, 909	1.7	18, 529	0.5	3, 265, 943	100
Mountain	890, 947	86.1	114, 025	11.0	29, 683	2.9	1, 034, 655	100
Pacific	2, 309, 321	80.9	441, 361	15.5	103, 099	3.6	2, 853, 781	100
United States	36, 212, 757	92.1	2, 133, 007	5.4	959, 990	2.5	39, 305, 754	100

¹ Adjusted for interassociation transactions. Includes purchases from other sources. Volume covered by bargaining transactions is included.

Figure 9
Whole Milk Distributed by Cooperatives, by Geographic Divisions, 1957
(Billions of pounds)



pounds.⁵ (table 15). Less than 2 percent, on a butterfat basis, was distributed at retail. Slightly over one-fifth was distributed at wholesale in containers. The remainder of over 78 percent was distributed at wholesale in bulk.

In the South Atlantic and Mountain areas, the percentages distributed at retail were higher than for other areas. In the Mountain area over one-half of the cream was distributed at wholesale in containers, while in the Middle Atlantic area over two-fifths and in the East North Central area almost one-third of the cream that cooperatives marketed was distributed at wholesale in containers.

Fluid Skim Milk

Cooperatives distributed a total of almost 3.8 billion pounds of skim

⁵ Cooperatives reported their packaged wholesale and retail sales of cream in quart equivalents. These were converted into pounds of butterfat on the basis of estimated butterfat content.

milk in 1957 (table 16 and figure 10). Less than 1 percent of this total was distributed at retail. The percentages sold at retail were relatively high for the South Atlantic and Mountain areas. Skim milk sold at wholesale in containers also represented high percentages in each of these two areas.

Bulk sales at wholesale represented 97 percent or more of the total sales of skim milk for the New England, East North Central, West North Central, and South Central areas. Bulk sales at wholesale represented 85 percent or more of the total skim milk sales of cooperatives in both the Middle Atlantic and Pacific areas.

Buttermilk

The total quantity of buttermilk that cooperatives distributed at wholesale and retail amounted to almost 90.7 million quart equivalents

TABLE 15. --Cream distributed by cooperatives, by geographic divisions, 1957¹

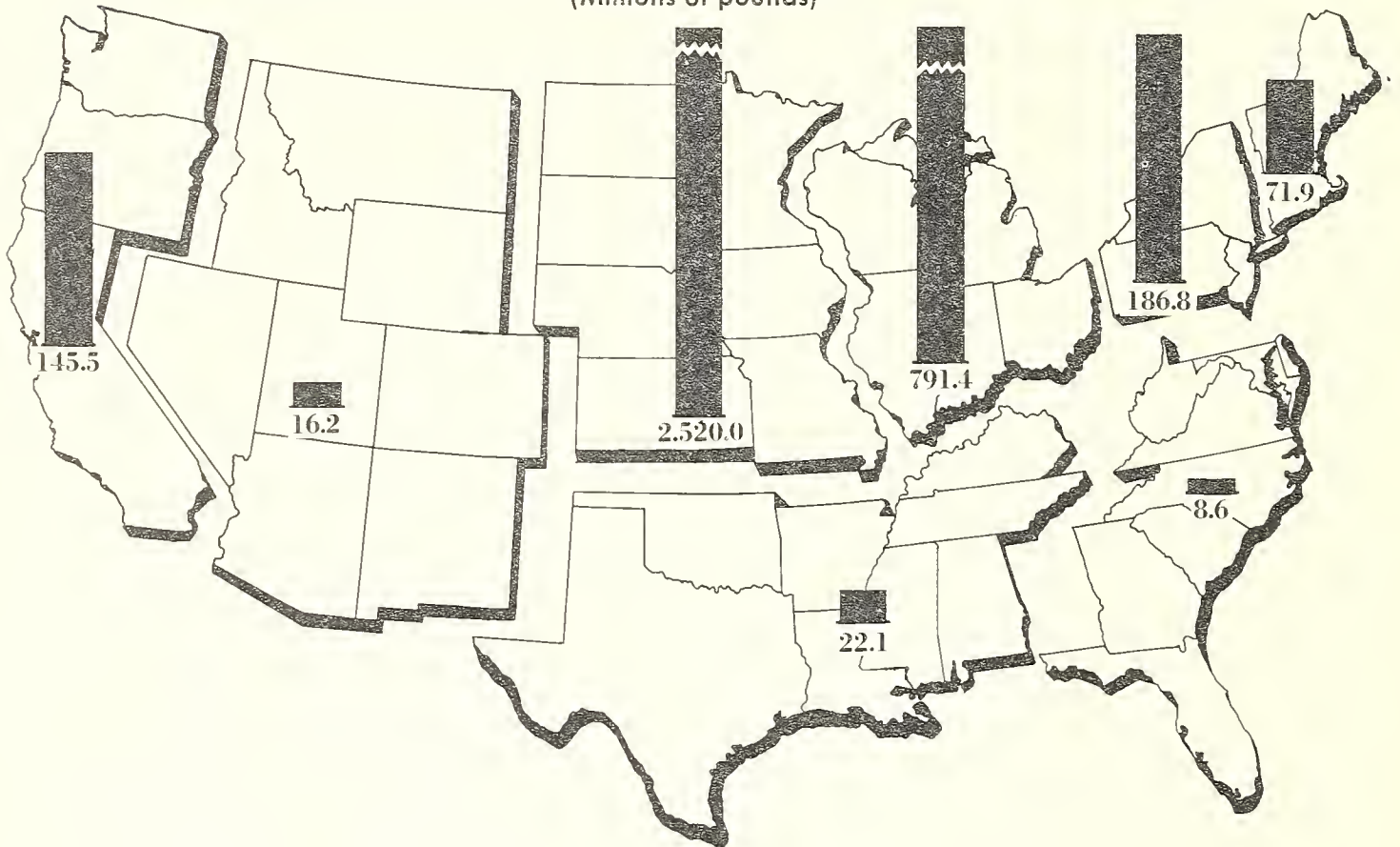
Geographic division	Wholesale				Retail		Total	
	Bulk		In containers		Butterfat 1,000 pounds	Percent	Butterfat 1,000 pounds	Percent
	Butterfat 1,000 pounds	Percent	Butterfat 1,000 pounds	Percent				
New England	6,727	76.3	1,992	22.6	101	1.1	8,820	100
Middle Atlantic	9,184	55.0	7,129	42.7	374	2.3	16,687	100
East North Central	26,906	65.2	13,478	32.7	880	2.1	41,264	100
West North Central	39,214	96.4	1,099	2.7	350	0.9	40,663	100
South Atlantic	4,279	77.7	921	16.7	306	5.6	5,506	100
South Central	14,043	99.0	115	0.8	31	0.2	14,189	100
Mountain	711	42.2	886	52.5	89	5.3	1,686	100
Pacific	8,850	74.0	2,714	22.7	390	3.3	11,954	100
United States	109,914	78.1	28,334	20.1	2,521	1.8	140,769	100

¹ Adjusted for interassociation transactions. Includes purchases from other sources.

TABLE 16. --Fluid skim milk distributed by cooperatives, by geographic areas, 1957

Geographic division	Wholesale				Retail		Total	
	Bulk		In containers		1, 000 pounds	Percent	1, 000 pounds	Percent
	1, 000 pounds	Percent	1, 000 pounds	Percent				
New England	70, 312	97. 7	475	0. 7	1, 146	1. 6	71, 933	100
Middle Atlantic	158, 681	84. 9	21, 569	11. 6	6, 560	3. 5	186, 810	100
East North Central	770, 278	97. 3	12, 016	1. 5	9, 095	1. 2	791, 389	100
West North Central	2, 496, 757	99. 0	21, 893	0. 9	1, 262	0. 1	2, 519, 912	100
South Atlantic	439	5. 1	3, 664	42. 5	4, 515	52. 4	8, 618	100
South Central	21, 437	96. 9	393	1. 8	286	1. 3	22, 116	100
Mountain	6, 596	40. 6	6, 936	42. 7	2, 711	16. 7	16, 243	100
Pacific	125, 060	86. 0	15, 901	10. 9	4, 515	3. 1	145, 476	100
United States	3,649,560	97. 0	82, 847	2. 2	30, 090	0. 8	3, 762, 497	100

Figure 10
 Fluid Skim Milk Distributed by Cooperatives, by Geographic Divisions, 1957
 (Millions of pounds)



(table 17 and figure 11). A little more than 9.1 million quart equivalents, representing 10 percent of the total, were distributed at retail. In the New England, South Atlantic, and South Central areas, the percentage distributed at retail represented one-fifth or more of the total that cooperatives distributed in each area.

Chocolate Milk

Cooperatives distributed just about one-half as much chocolate milk as they did buttermilk in 1957. Their total volume was almost 45.5 million quart equivalents (table 18). A little over 7 million quart equivalents, representing about 16 percent of the total, were distributed at retail. More than one-fourth was distributed at retail in the Pacific area. One-fifth or more was distributed at retail in the New England, East North Central and South Atlantic areas.

The Middle Atlantic and East North

Central areas combined accounted for more than three-fifths of the total chocolate milk distributed by cooperatives in 1957.

Manufactured Products

The major manufactured products dairy cooperatives distributed at wholesale and retail in 1957 are shown in tables 19 to 23, inclusive, according to the percentages sold at each distribution level. The manufactured products sold primarily at wholesale were nonfat dry milk (table 24), condensed skim milk, dry buttermilk, and dry whole milk (table 25).

Creamery butter

The total volume of butter cooperatives distributed at wholesale and retail amounted to almost 816 million pounds (table 19 and figure 12). Cooperatives distributed 58.7 million pounds, or just a little over 7 percent of this volume, at retail.

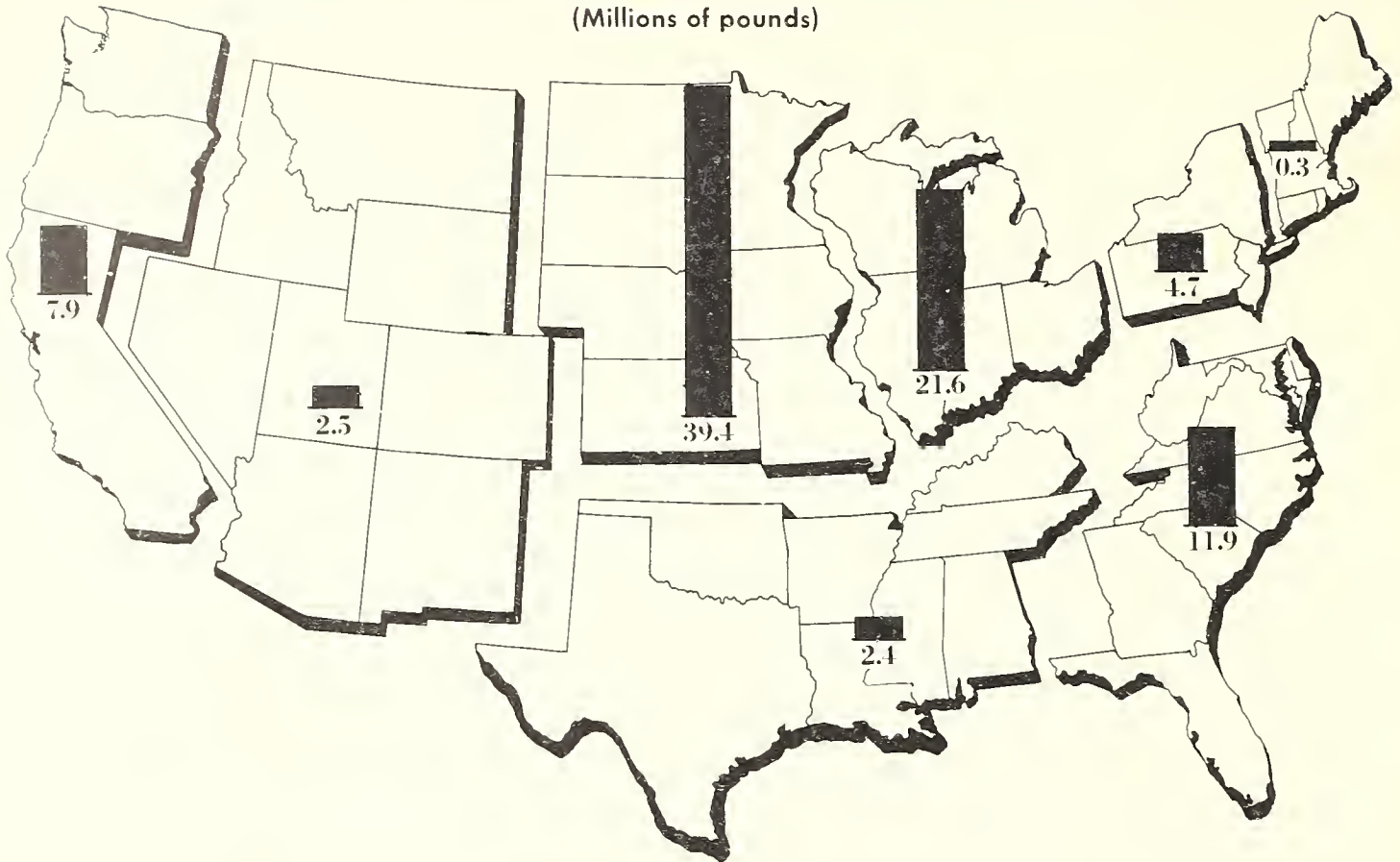
TABLE 17. --Buttermilk distributed by cooperatives, by geographic divisions, 1957

Geographic division	Wholesale		Retail		Total	
	1,000 quart equivalent	Percent	1,000 quart equivalent	Percent	1,000 quart equivalent	Percent
New England	245	80.1	61	19.9	306	100
Middle Atlantic	4,109	87.0	616	13.0	4,725	100
East North Central	19,920	92.4	1,636	7.6	21,556	100
West North Central	36,847	93.5	2,565	6.5	39,412	100
South Atlantic	9,235	77.7	2,649	22.3	11,884	100
South Central	1,889	79.9	475	20.1	2,364	100
Mountain	2,234	88.3	296	11.7	2,530	100
Pacific	7,059	89.5	830	10.5	7,889	100
United States	81,538	89.9	9,128	10.1	90,666	100

Figure 11

Buttermilk Distributed by Cooperatives, Geographic Divisions, 1957

(Millions of pounds)



The East North Central and West North Central areas combined accounted for more than 88 percent of

the total amount cooperatives distributed, with almost 7 percent of the combined total distributed at retail.

TABLE 18. --Chocolate milk distributed by cooperatives, by geographic divisions, 1957

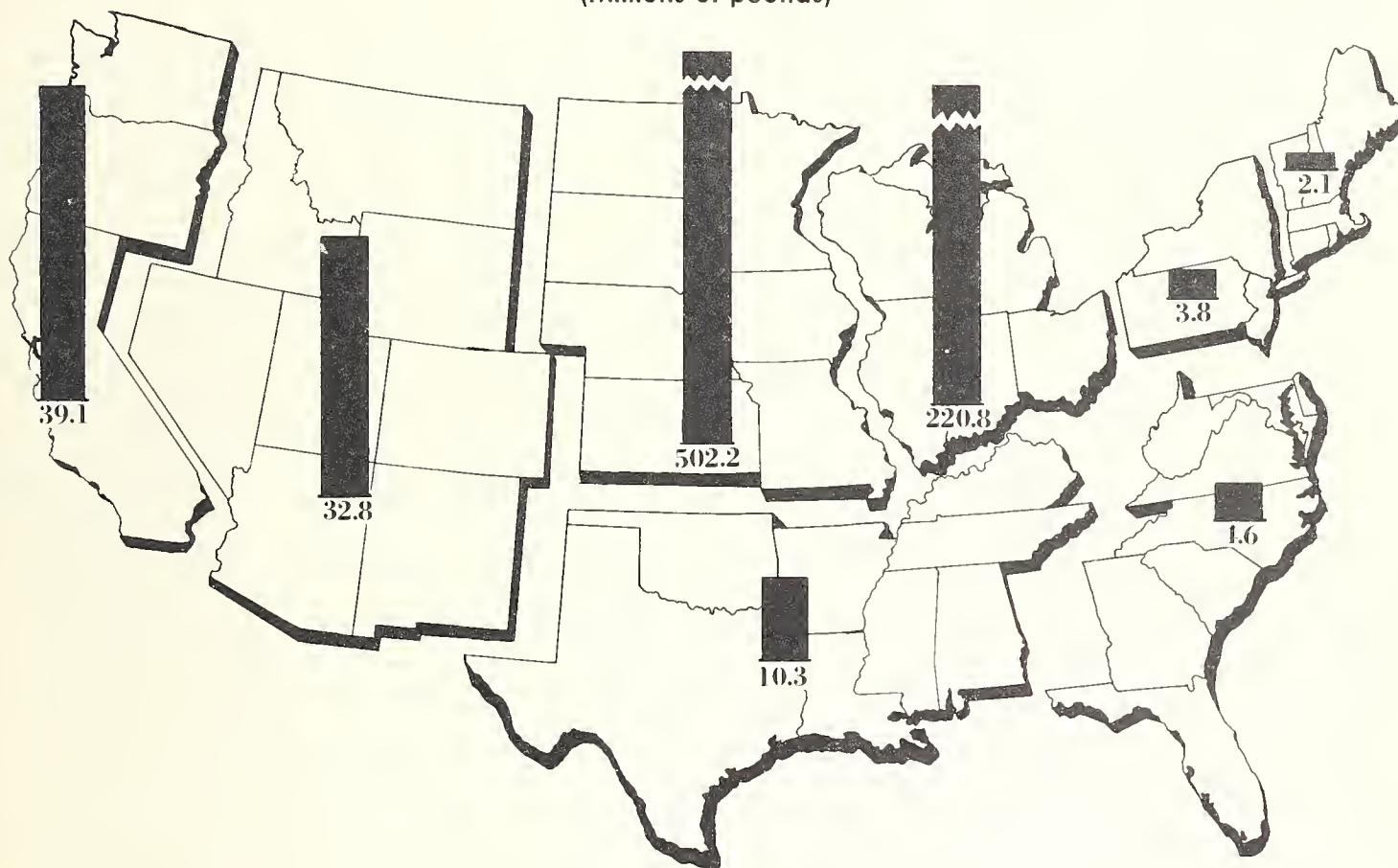
Geographic division	Wholesale		Retail		Total	
	1,000 quart equivalent	Percent	1,000 quart equivalent	Percent	1,000 quart equivalent	Percent
New England	955	78.7	258	21.3	1,213	100
Middle Atlantic	14,403	96.2	568	3.8	14,971	100
East North Central	10,647	76.4	3,291	23.6	13,938	100
West North Central	2,314	91.0	230	9.0	2,544	100
South Atlantic	4,737	79.1	1,255	20.9	5,992	100
South Central	1,201	84.6	219	15.4	1,420	100
Mountain	1,513	85.7	252	14.3	1,765	100
Pacific	2,568	71.2	1,041	28.8	3,609	100
United States	38,338	84.3	7,114	15.7	45,452	100

TABLE 19. --Creamery butter distributed by cooperatives, by geographic divisions, 1957¹

Geographic division	Wholesale		Retail		Total	
	1,000 pounds	Percent	1,000 pounds	Percent	1,000 pounds	Percent
New England	1,907	91.3	181	8.7	2,088	100
Middle Atlantic	2,452	65.1	1,312	34.9	3,764	100
East North Central	206,785	93.7	13,980	6.3	220,765	100
West North Central	465,757	92.7	36,496	7.3	502,253	100
South Atlantic	2,489	53.7	2,148	46.3	4,637	100
South Central	9,217	89.9	1,040	10.1	10,257	100
Mountain	31,418	95.8	1,385	4.2	32,803	100
Pacific	36,979	94.5	2,134	5.5	39,113	100
United States	757,004	92.8	58,676	7.2	815,680	100

¹ Adjusted for interassociation transactions. Includes purchases from other sources.

Figure 12
Creamery Butter Distributed by Cooperatives, by Geographic Divisions, 1957
 (Millions of pounds)



More than 46 percent of the total of 4.6 million pounds of butter distributed in the South Atlantic area was marketed at retail. In the Middle Atlantic area, cooperatives marketed at retail 35 percent of their total sales of 3.8 million pounds.

American Cheddar Cheese

Cooperatives distributed a total of almost 216 million pounds of American cheddar cheese in 1957 (table 20 and figure 13). Only 1.7 percent of this amount was marketed at retail.

While the New England area showed the high proportion of 63 percent marketed at retail, the total amount distributed by cooperatives in this area was only 216,000 pounds, representing about one-tenth of 1 percent of the total American cheddar cheese distributed by all cooperatives in the United States.



Cooperative laboratory where products are tested for high quality.

Cottage Cheese (Curd or Creamed)

Cooperatives distributed more than 96 million pounds of cottage cheese

TABLE 20. --American cheddar cheese distributed by cooperatives, by geographic divisions, 1957¹

Geographic division	Wholesale		Retail		Total	
	1, 000 pounds	Percent	1, 000 pounds	Percent	1, 000 pounds	Percent
New England	80	37.0	136	63.0	216	100
Middle Atlantic	5, 655	98.8	70	1.2	5, 725	100
East North Central	132, 911	98.6	1, 900	1.4	134, 811	100
West North Central	37, 454	98.3	664	1.7	38, 118	100
South Atlantic	53	100.0	--	--	53	100
South Central	4, 209	100.0	(2)	(2)	4, 209	100
Mountain	7, 680	94.2	469	5.8	8, 149	100
Pacific	24, 141	98.2	446	1.8	24, 587	100
United States	212, 183	98.3	3, 685	1.7	215, 868	100

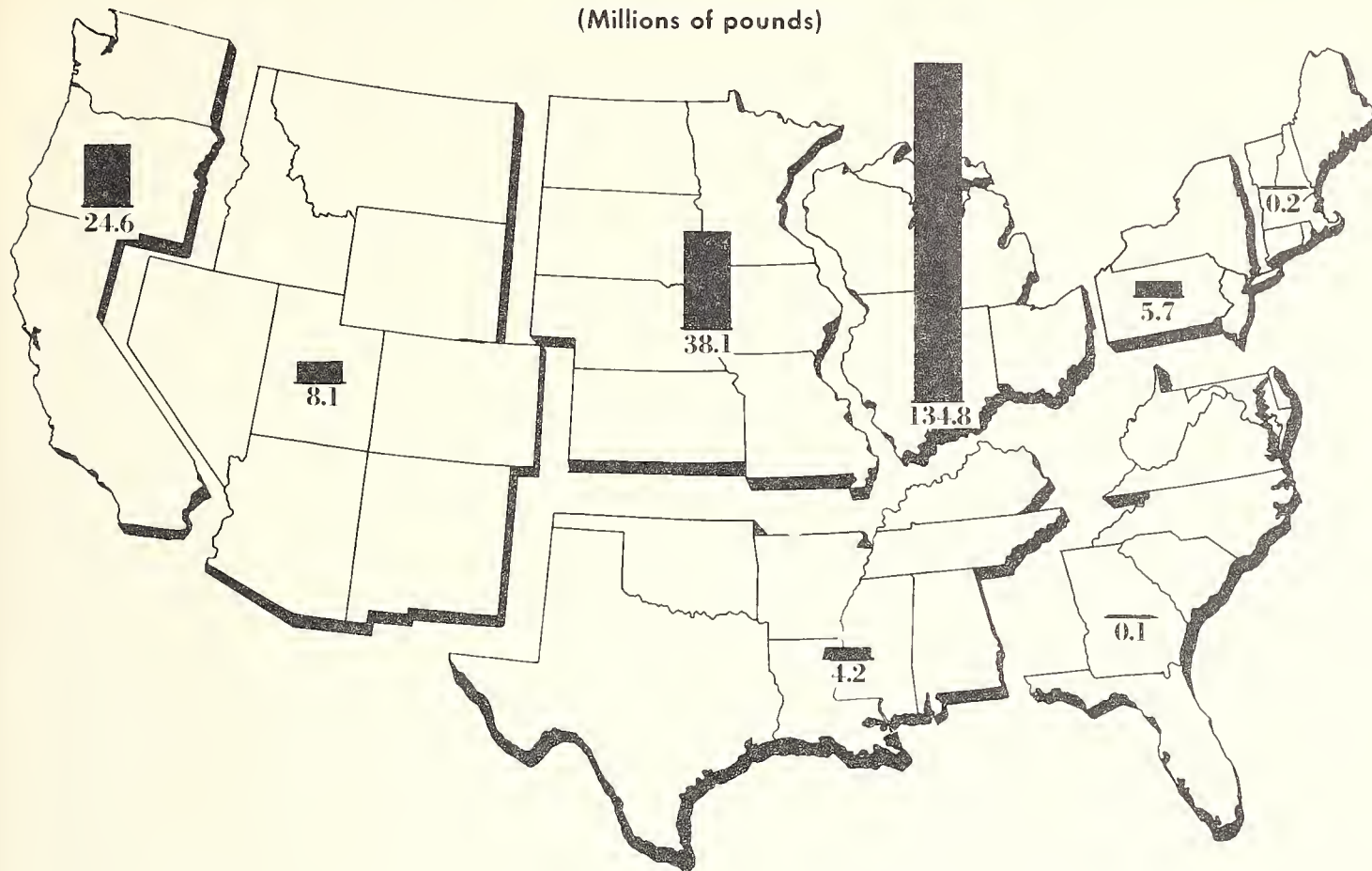
¹ Adjusted for interassociation transactions. Includes purchases from other sources.

² Less than 500 pounds.

Figure 13

American Cheddar Cheese Distributed by Cooperatives, by Geographic Divisions, 1957

(Millions of pounds)



(curd or creamed) in 1957 (table 21 and figure 14). Almost 12 percent of this volume was marketed at retail.

Cooperatives in the Middle Atlantic area sold at retail two-fifths of the 11 million pounds they distributed in 1957. In the South Atlantic area about 22 percent of the total was distributed at retail, and in the South Central area 17 percent of the cottage cheese marketed by cooperatives was sold at retail.

In the East North Central area, which accounted for almost 30 percent of the total distributed by cooperatives, a little over 10 percent was sold at retail.

Other Cheese

Cooperatives distributed over 38 million pounds of other cheese, exclusive of American cheddar and cottage cheese, in 1957 (table 22). Almost 70 percent of this other cheese was distributed in the East North Central area. A large part of this volume was Swiss cheese. Less important in volume were brick, muns-ter, and limburg-er. Cooperatives made less than 3 percent of these sales of other cheese at retail.

Ice Cream

Cooperatives were less important in distributing ice cream than in

TABLE 21. --Cottage cheese (curd or creamed) distributed by cooperatives, by geographic divisions, 1957¹

Geographic division	Wholesale		Retail		Total	
	1,000 pounds	Percent	1,000 pounds	Percent	1,000 pounds	Percent
New England	4,131	97.1	123	2.9	4,254	100
Middle Atlantic	6,651	60.0	4,436	40.0	11,087	100
East North Central	26,709	89.7	3,065	10.3	29,774	100
West North Central	17,175	99.2	135	0.8	17,310	100
South Atlantic	4,761	78.4	1,314	21.6	6,075	100
South Central	1,017	83.0	209	17.0	1,226	100
Mountain	6,305	91.1	615	8.9	6,920	100
Pacific	18,149	92.7	1,420	7.3	19,569	100
United States	84,898	88.2	11,317	11.8	96,215	100

¹ Adjusted for interassociation transactions. Includes purchases from other sources.

Figure 14
Cottage Cheese (curd or creamed) Distributed by Cooperatives
by Geographic Divisions, 1957
 (Millions of pounds)

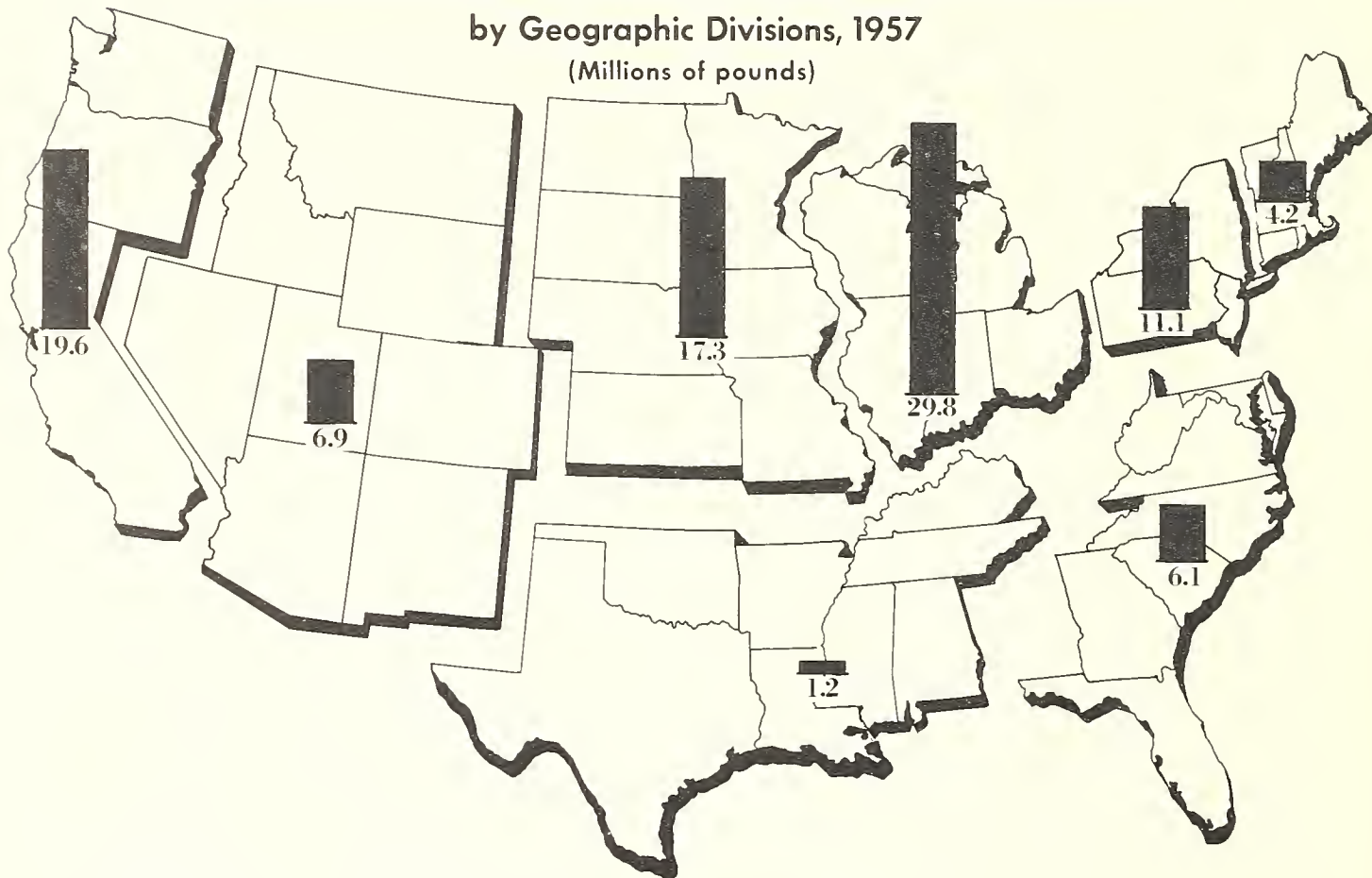


TABLE 22. --Other cheese (excluding American cheddar and cottage) distributed by cooperatives, by geographic divisions, 1957¹

Geographic division	Wholesale		Retail		Total	
	1,000 pounds	Percent	1,000 pounds	Percent	1,000 pounds	Percent
New England	--	--	50	100.0	50	100
Middle Atlantic	--	--	--	--	--	--
East North Central	25,539	97.0	787	3.0	26,326	100
West North Central	3,091	96.7	106	3.3	3,197	100
South Atlantic	--	--	--	--	--	--
South Central	--	--	--	--	--	--
Mountain	5,978	97.6	147	2.4	6,125	100
Pacific	2,346	98.6	33	1.4	2,379	100
United States	36,954	97.1	1,123	2.9	38,077	100

¹ Adjusted for interassociation sales. Includes purchases from other sources.

marketing other manufactured dairy products. Their total sales amounted to about 31.2 million gallons in 1957 (table 23). Of this amount, only 1 percent was distributed at retail. Almost two-fifths of their total sales of ice cream occurred in the Pacific area, where sales amounted to close to 12 million gallons. Next highest was the Middle Atlantic area where

cooperative sales were over 7 million gallons, all at wholesale.

Nonfat Dry Milk

Cooperatives were important in the distribution of nonfat dry milk at wholesale, marketing over 1.2 billion pounds in 1957 (table 24).

TABLE 23. --Ice cream distributed by cooperatives, by geographic divisions, 1957¹

Geographic division	Wholesale		Retail		Total	
	1,000 gallons	Percent	1,000 gallons	Percent	1,000 gallons	Percent
New England	210	96.8	7	3.2	217	100
Middle Atlantic	7,003	100.0	--	--	7,003	100
East North Central	5,822	99.0	56	1.0	5,878	100
West North Central	2,785	92.2	237	7.8	3,022	100
South Atlantic	1,761	100.0	--	--	1,761	100
South Central	449	100.0	--	--	449	100
Mountain	899	99.9	1	0.1	900	100
Pacific	11,953	99.9	8	0.1	11,961	100
United States	30,882	99.0	309	1.0	31,191	100

¹ Adjusted for interassociation transactions. Includes purchases from other sources.

The East North Central and West North Central areas combined accounted for more than 85 percent of the total sales cooperatives made at wholesale in 1957.

Condensed Skim Milk

Cooperatives distributed 85 million pounds of condensed skim milk at wholesale in 1957 (table 25). The West North Central area accounted for one-fourth, the East North Central area for one-third, and the South Central area for about one-fifth of the total.

Dry Buttermilk

Cooperatives distributed at wholesale nearly 42.3 million pounds of dry buttermilk in 1957 (table 25). The East North Central and West North Central areas combined accounted for all but a little over 2 percent of the total.

TABLE 24. --Nonfat dry milk distributed by cooperatives, by geographic divisions 1957

Geographic division	Distributed at wholesale ¹
	<i>1,000 pounds</i>
New England	12,276
Middle Atlantic	29,984
East North Central	525,809
West North Central	521,943
South Atlantic	8,575
South Central	10,631
Mountain	61,225
Pacific	43,334
United States	<u>1,213,777</u>

¹ Adjusted for interassociation transactions. Includes purchases from other sources.

Dry Whole Milk

The dry whole milk cooperatives distributed at wholesale in 1957 amounted to about 13.7 million pounds (table 25). Almost 90 percent of the total was distributed in the East North Central area.

TABLE 25. --Other manufactured dairy products distributed at wholesale by cooperatives, by geographic divisions, 1957

Geographic division	Distributed at wholesale ¹		
	Condensed skim milk ²	Dry buttermilk	Dry whole milk
	<i>1,000 pounds</i>	<i>1,000 pounds</i>	<i>1,000 pounds</i>
New England	--	--	--
Middle Atlantic	7,750	44	--
East North Central	28,300	14,973	³ 12,322
West North Central	21,537	26,148	3 914
South Atlantic	3,585	--	--
South Central	15,617	701	--
Mountain	621	321	66
Pacific	<u>7,555</u>	<u>98</u>	<u>395</u>
United States	84,965	42,285	13,697

¹ Adjusted for interassociation transactions. Includes purchases from other sources.

² Includes sweetened and unsweetened.

³ Adjusted for plant location of two regional cooperatives.

Types and Combinations of Dairy Products Handled at Each Level of Operation

To obtain a better understanding of the extent of integration and diversification in the operations of dairy cooperatives, the data were summarized to show the types of dairy products cooperatives handled at each of the four major levels of operation: (1) Receiving and bargaining, (2) manufacturing, (3) distributing at wholesale, and (4) distributing at retail.

Receiving and Bargaining

The dairy products cooperatives received and bargained for appear in table 26 according to the number and percent of associations that reported each product or combination of products.

In the combinations of dairy products shown in table 26, those products manufactured by other cooperatives or other firms and purchased by the reporting associations are included as a part of the receiving operation.

Associations receiving or bargaining for only whole milk, cream, skim milk, or combinations of these fluid products, represented more than four-fifths of the 1,557 dairy cooperatives included in the study, with only one-fifth reporting receipts of manufactured dairy products.

Manufacturing

A total of 1,180 associations, or a little over three-fourths of the 1,557 cooperatives included in the study, manufactured dairy products in 1957. Table 27 indicates that almost one-half of these 1,180 associations manufactured butter only. Fifteen percent of these associations manufactured cheddar cheese only in 1957. Thus, the production of butter only or cheddar cheese only constituted the manufacturing operations of almost 65 percent of the 1,180 associations that manufactured dairy products in 1957.

TABLE 26. --Number of dairy cooperatives receiving or bargaining for dairy products specified, 1957

Dairy products	Associations receiving or bargaining for dairy products specified	
	Number	Percent
Whole milk only	684	43.9
Whole milk and cream	372	23.9
Cream only	136	8.7
Whole milk, cream, and manufactured products	106	6.8
Whole milk and manufactured products	88	5.7
Whole milk, cream, and skim milk	61	3.9
Whole milk, cream, skim milk, and manufactured products	61	3.9
All other combinations	49	3.2
Total	1,557	100.0

The manufacture of butter or cheese, or of both butter and cheese, was also included in the operations of a number of other dairy cooperatives. For example, table 27 shows that 44 associations manufactured butter and nonfat dry milk; 22 associations manufactured butter and dry buttermilk; 22 associations manufactured all three of these products; 26 associations manufactured cheddar cheese and butter; and 35 associations manufactured butter and ice cream.

On the whole, the manufacture of cheddar cheese appeared to be a specialized operation as only 15 associations reported manufacturing other types of cheese (not including cottage cheese) along with the manufacture of cheddar cheese.

In the manufacture of cheddar cheese and butter, it is interesting

to note that 26 associations reported manufacturing these two products only (table 27). In addition, 34 other associations manufactured butter and cheddar cheese along with other combinations of products. Thus, only 60 associations appeared to be utilizing the extra butterfat in their own plants by using standardized cheese milk and whey cream in butter manufacture.

Out of the 888 cooperatives that manufactured butter, only 97 also reported production of dry buttermilk. This indicates that only about 11 percent of these butter-making associations utilized the buttermilk in their own plants in the manufacture of dry buttermilk.

In addition to the 35 associations already mentioned that manufactured both butter and ice cream, 95 other associations whose operations were

TABLE 27. --Number of cooperatives manufacturing dairy products in 1957

Dairy products manufactured	Cooperatives manufacturing dairy products specified	
	Number	Percent
Butter only	589	49.9
Cheddar cheese only	174	14.8
Nonfat dry milk only	8	0.7
Other cheese ¹ only	50	4.2
Butter and nonfat dry milk	44	3.7
Butter and dry buttermilk	22	1.9
Butter, dry buttermilk, and nonfat dry milk	22	1.9
Cheddar cheese and butter	26	2.2
Butter and ice cream	35	3.0
Other combinations of 3 or less products	116	9.8
Combinations of 4 products	47	4.0
Combinations of 5 products	26	2.2
Combinations of 6 products	12	1.0
Combinations of 7 products	5	0.4
Combinations of 8 products	4	0.3
Total	² 1,180	100.0

¹ Not including cheddar and cottage cheese.

² A total of 377 dairy cooperatives reported no manufacturing of dairy products in 1957.

included in the unspecified commodity combinations in table 27 reported manufacturing ice cream, making a total of 130 associations, or a little over 11 percent of the 1,180 associations that manufactured dairy products.

Distributing at Wholesale

The number of dairy associations that distributed each of the major fluid and manufactured dairy products at wholesale appear in table 28. These associations include bargaining cooperatives.⁶ The table reflects the importance of all associations concerned with the wholesale distribution of milk and cream, including both the volume cooperatives physically handled as well as that volume sold to bottling concerns and other wholesale buyers by negotiation which cooperatives did not physically handle.

Table 28 indicates that 47 percent of the 1,557 associations in the study sold milk at wholesale (including milk sold through bargaining transactions) in 1957. More than 57 percent of all associations sold creamery butter at wholesale in 1957.

A total of 455 associations, or more than 29 percent of the total, distributed packaged fluid products at wholesale in 1957. These pack-

aged fluid products included either one or a combination of the following: Whole milk, cream, skim milk, buttermilk, and chocolate milk.

About 28 percent of these associations distributed cream in bulk form (including a very small volume covered by bargaining transactions) at wholesale in 1957.

Twenty-three percent of all associations distributed bulk skim milk at wholesale in 1957. Eighteen percent of the associations distributed cheddar cheese at wholesale.

Distributing at Retail

A total of 811 associations, or 52 percent of the total number, reported sales of dairy products at retail in 1957. Table 29 indicates that 712, or almost 46 percent, of

TABLE 28. --Number of dairy cooperatives that distributed specified dairy products at wholesale, 1957

Dairy products	Cooperatives that distributed at wholesale dairy products specified	
	Number	Percent ¹
Creamery butter	891	57.2
Whole milk (bulk)	735	47.2
Packaged fluid products	455	29.2
Cream (bulk)	431	27.7
Skim milk (bulk)	354	22.7
American cheddar cheese	277	17.8
Nonfat dry milk	198	12.7
Cottage cheese	135	8.7
Other cheese ²	82	5.3
Other products ³	261	16.8

¹ Total exceeds 100 percent because many cooperatives distributed at wholesale more than one dairy product.

² Excluding cheddar and cottage cheese.

³ Includes dry buttermilk, dry whole milk, condensed skim milk, ice cream, and unspecified.

⁶Dairy bargaining associations derive all or a major portion of their business volume from negotiation of price and other terms of sale for milk sold in bulk form to distributors. Dairy bargaining associations at one time generally performed only price negotiation functions. Many now perform additional functions such as physically handling a portion of the milk and making spot sales. Bargaining associations, like other dairy marketing cooperatives, represent their members at Federal or State milk order hearings.

TABLE 29. --Number of dairy cooperatives that distributed specified dairy products at retail, 1957

Dairy products	Cooperatives that distributed at retail dairy products specified	
	Number	Percent ¹
Butter	712	45.8
Whole milk	197	12.7
Cream	168	10.8
American cheddar cheese	158	10.2
Buttermilk	118	7.6
Fluid skim milk	97	6.4
Cottage cheese	95	6.1
Chocolate milk	80	5.1
Ice cream	49	3.1
Other cheese (exclusive of cheddar and cottage)	39	2.5

¹ Total exceeds 100 percent because many cooperatives distributed at retail more than one dairy product.

all associations in the study, sold butter at retail. A total of 197 associations, or about 13 percent of the total, sold whole milk at retail; 168 associations, or 11 percent, sold cream; and 158 associations, or 10 percent, sold American cheddar cheese at retail. All other dairy products sold at retail were reported

by less than 10 percent of the associations in the survey.

It should be pointed out, however, that because data were developed from operating statements furnished in the annual survey for those associations not included in the sample or included but failing to furnish a dairy questionnaire, the retail data may tend to be understated slightly and the wholesale data correspondingly overstated. This results from the classification of sales of dairy products as distributed at wholesale unless operating statements or other available data showed definitely the amount of sales made at retail. Thus, there may be included in the wholesale volume a small number of sales that were actually made at retail but were not specifically shown as retail sales in the operating statements received in the annual survey of farmer cooperatives.

Also, it is important to keep in mind that some of these associations reporting sales of butter and other dairy products at retail made such sales in small quantities and that many associations made such retail sales primarily as a service to their patrons.

Cooperatives Manufacturing Dairy Products by Production-Size Groups

The number of cooperatives that manufactured the major dairy products in 1957 are shown by production-size groups in table 30. The location of these associations is shown by States and geographic divisions in table 1.

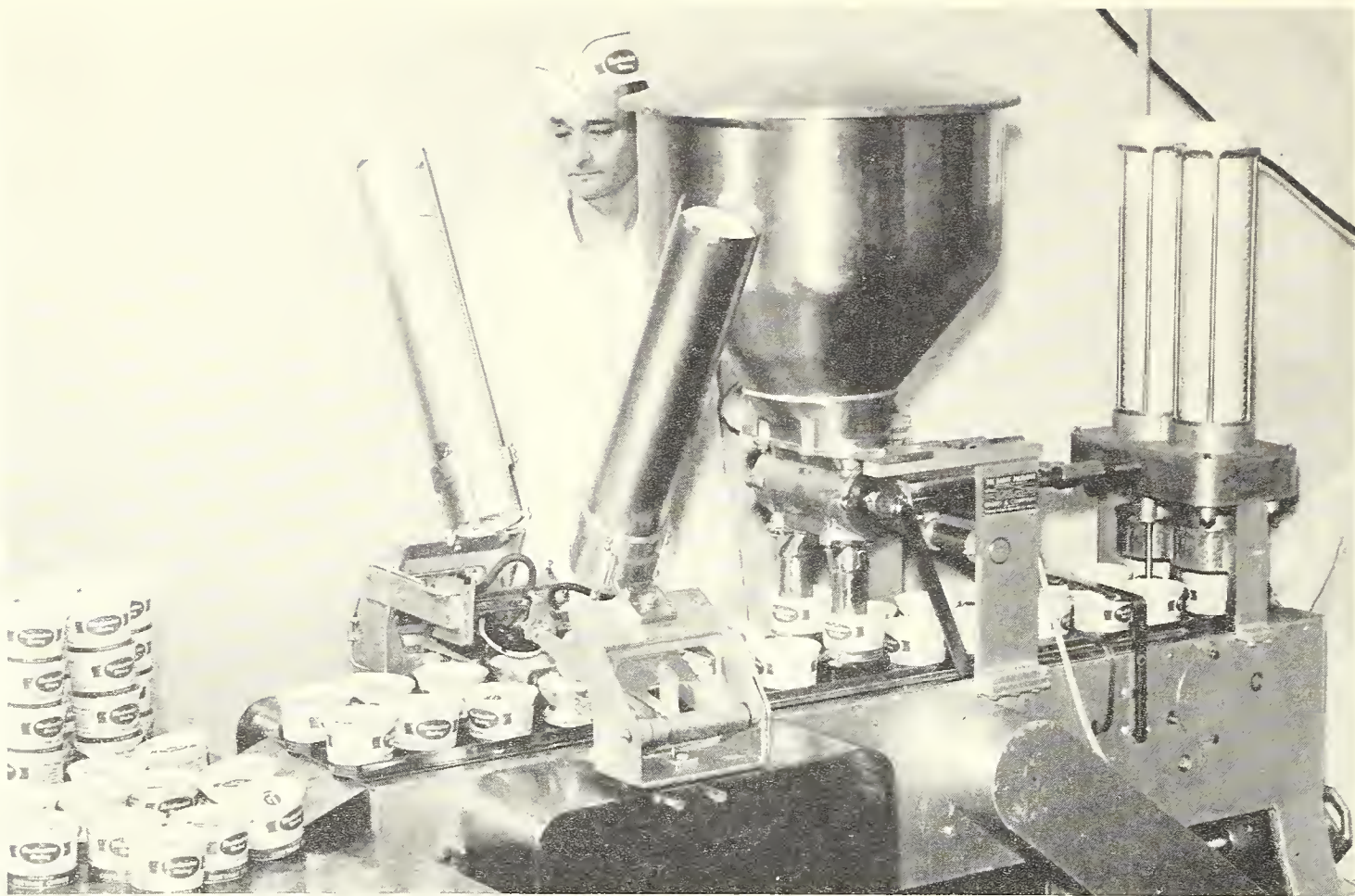
A total of 183 associations, or slightly more than one-fifth of the

888 associations that manufactured creamery butter, produced between 250,000 and 500,000 pounds of butter each in 1957. Another 139 associations, or almost 16 percent of the cooperatives that made butter, produced between 500,000 and 750,000 pounds each. Five associations each produced more than 10 million pounds of butter in 1957.

TABLE 30.--Cooperatives manufacturing major dairy products by production-size groups, 1957

Production (pounds)	Associations manufacturing dairy products specified by production-size groups															
	Creamery butter		American cheddar cheese		Cottage (curd or creamed) cheese		Other cheese ¹		Condensed skim milk		Nonfat dry milk		Dry buttermilk		Dry whole milk	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
Less than 50,000	48	5.4	8	3.2	20	18.5	3	4.0	1	2.6	4	2.1	20	18.6	3	15.0
50,000 - 99,999	53	6.0	7	2.8	11	10.2	3	4.0	--	--	3	1.6	16	15.0	3	15.0
100,000 - 174,999	71	8.0	12	4.9	17	15.7	9	12.0	4	10.5	1	0.5	16	15.0	2	10.0
175,000 - 249,999	85	9.6	27	10.9	5	4.6	17	22.7	3	7.9	2	1.0	9	8.4	1	5.0
250,000 - 499,999	183	20.6	57	23.0	14	13.0	23	30.7	2	5.3	6	3.1	21	19.6	4	20.0
500,000 - 749,999	139	15.6	57	23.0	11	10.2	9	12.0	4	10.5	9	4.7	8	7.5	1	5.0
750,000 - 999,999	83	9.3	29	11.7	6	5.5	--	--	2	5.3	11	5.8	3	2.8	1	5.0
1,000,000 - 1,499,999	84	9.5	25	10.1	7	6.5	9	12.0	3	7.9	12	6.3	6	5.6	--	--
1,500,000 - 1,999,999	55	6.2	5	2.0	5	4.6	--	--	2	5.3	11	5.8	2	1.9	2	10.0
2,000,000 - 2,499,999	29	3.3	5	2.0	2	1.9	--	--	3	7.9	12	6.3	2	1.9	2	10.0
2,500,000 - 2,999,999	8	0.9	6	2.4	3	2.8	1	1.3	3	7.9	14	7.3	1	0.9	1	5.0
3,000,000 - 3,499,999	9	1.0	1	0.4	1	0.9	1	1.3	1	2.6	10	5.2	--	--	--	--
3,500,000 - 3,999,999	9	1.0	3	1.2	1	0.9	--	--	1	2.6	9	4.7	1	0.9	--	--
4,000,000 - 4,499,999	8	0.9	2	0.8	--	--	--	--	1	2.6	16	8.4	--	--	--	--
4,500,000 - 4,999,999	5	0.6	1	0.4	2	1.9	--	--	2	5.3	9	4.7	--	--	--	--
5,000,000 - 7,499,999	13	1.5	1	0.4	1	0.9	--	--	2	5.3	23	12.1	--	--	--	--
7,500,000 - 9,999,999	1	0.1	--	--	2	1.9	--	--	1	2.6	15	7.9	2	1.9	--	--
10,000,000 - 14,999,999	2	0.2	2	0.8	--	--	--	--	3	7.9	10	5.2	--	--	--	--
15,000,000 - 19,999,999	3	0.3	--	--	--	--	--	--	--	--	4	2.1	--	--	--	--
20,000,000 and over	--	--	--	--	--	--	--	--	--	--	10	5.2	--	--	--	--
Total	888	100.0	248	100.0	108	100.0	75	100.0	38	100.0	191	100.0	107	100.0	20	100.0

¹ Exclusive of cheddar and cottage cheese.



Cooperatives produced over 91 million pounds of cottage cheese, or 7 percent of the 1.2 billion pounds produced in the United States.

Of the 248 associations that manufactured American cheddar cheese in 1957, 57 produced between 250,000 and 500,000 pounds each. Another 57 associations each produced between 500,000 and 750,000 pounds of American cheddar cheese in 1957. These two groups accounted for 46 percent of the total number of associations that manufactured American cheddar cheese. Two associations produced more than 10 million pounds each of American cheddar cheese in 1957.

Slightly under one-fifth of the 108 cooperatives that produced cottage cheese (curd or creamed) were in the group that produced less than 50,000 pounds each. Three associa-

tions each produced more than 5 million pounds, but no association produced 10 million pounds or more of cottage cheese in 1957.

Almost one-third of the 75 cooperatives that manufactured other types of cheese, exclusive of cheddar and cottage, produced between 250,000 and 500,000 pounds each in 1957. The highest production of other cheese reported was between 3 and 3.5 million pounds by one association.

Of the 38 associations that reported manufacturing condensed skim milk in 1957, 3 produced between 10 and 15 million pounds each; 1 association produced between 7.5 and 10 million pounds, and 2 associations

produced between 5 and 7.5 million pounds each.

Of all products manufactured by dairy cooperatives, nonfat dry milk was the one produced in largest volume by individual associations. Table 30 shows that 10 of the 191 associations that manufactured this product produced over 20 million pounds each in 1957; 4 produced between 15 and 20 million pounds each; and 10 produced between 10 and 15 million pounds each. Less than one-fifth of the associations that manufactured nonfat dry milk in 1957 produced under 1 million pounds each.

About 19 percent of the 107 associations that manufactured dry buttermilk produced less than 50,000 pounds each in 1957. Two associations produced between 7.5 and 10 million pounds each of dry buttermilk in 1957.

Only 20 associations reported manufacturing dry whole milk in 1957 and none of these produced over 3 million pounds.

Cooperative production of the major dairy products shown in table 30 was measured on the basis of pounds manufactured. Not included in this table is cooperative production of ice cream which was measured on the basis of gallons manufactured in 1957. A total of 130 associations reported manufacturing ice cream in 1957. Of this number, 72 associations, representing more than 55 percent of all cooperatives that manufactured ice cream, produced less than 50,000 gallons each. Another 23 associations, or almost 18 percent, manufactured between 50,000 and 100,000 gallons of ice cream in 1957. The highest production--reported by only one association--was between 3.5 and 4 million gallons. Two other associations manufactured between 2.5 and 3 million gallons of ice cream each in 1957.

Transportation

Cooperatives were requested to supply information on the percentages of dairy products transported at different levels of operation in trucks they owned and leased. Separate data were requested for the percentages transported in such trucks from farm to receiving plant, between plants each association owned, to the wholesale trade, and to the retail trade.

It is expected that the study reported here on the extent of integration in the business activities of dairy cooperatives will be conducted on a rotated basis with other com-

modity groups possibly every 5 years. Therefore, the information developed in this study on use of owned and leased trucks is intended to provide a benchmark for measuring only limited trends in transportation facilities used by dairy cooperatives.

Table 31 shows the number of cooperatives that supplied information on the percentages of dairy products hauled in owned or leased trucks from farm to plant, between owned plants, and to the wholesale and retail trade. The transportation questions did not apply to a number of

TABLE 31. --Cooperatives reporting specified percent of dairy products transported in owned and leased trucks, 1957

Percent transported	Number and percent of cooperatives that reported specified percent transported in owned and leased trucks of--							
	Milk and butterfat between farms and receiving plants		Milk and milk products between association-owned plants		Milk and manufactured dairy products sold to wholesale trade ¹		Milk and manufactured dairy products sold to retail trade	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
None	304	44.3	61	36.5	216	46.1	71	24.8
0.1 - 9.9	27	3.9	4	2.4	24	5.1	4	1.4
10.0 - 19.9	27	3.9	1	0.6	17	3.6	9	3.2
20.0 - 29.9	23	3.4	4	2.4	12	2.6	7	2.5
30.0 - 39.9	17	2.5	1	0.6	2	0.4	4	1.4
40.0 - 49.9	19	2.8	--	--	3	0.6	2	0.7
50.0 - 59.9	21	3.1	1	0.6	8	1.7	6	2.1
60.0 - 69.9	28	4.1	--	--	3	0.6	4	1.4
70.0 - 79.9	32	4.7	--	--	8	1.7	4	1.4
80.0 - 89.9	42	6.1	--	--	7	1.5	6	2.1
90.0 - 99.9	47	6.8	7	4.2	32	6.9	23	8.0
100.0	99	14.4	88	52.7	137	29.2	146	51.0
Total reporting percentages	686	100.0	167	100.0	469	100.0	286	100.0
Reporting but not applicable ²	174	--	835	--	174	--	414	--
Not reporting	697	--	555	--	914	--	857	--
Total	1,557	--	1,557	--	1,557	--	1,557	--

¹ Does not include drayage to local depot.

² Includes bargaining associations that did not physically handle dairy products.

associations replying, as shown in this table. For example, 835 associations that replied to the transportation questions gave no percentages on interplant hauling and it was assumed that they operated only one plant in 1957. A total of 414 associations that replied to the transportation questions indicated they did not sell to the retail trade in 1957.

Of the 686 associations that supplied information on percentages of milk and butterfat transported between farms and receiving plants, more than two-fifths hauled none in trucks they owned or leased. These associations relied on contract haulers and others for farm-to-plant hauling. On the other hand, over 14 percent reported hauling all of their milk and butterfat from farms to receiving plants in trucks they owned or leased and another 7 percent hauled between 90 and 100 percent from farms to receiving plants in their own or leased trucks.

Of the 167 associations that reported on transportation between their own plants, more than one-half moved all milk and milk products between

these plants in trucks they owned or leased. More than 36 percent of these 167 associations did no hauling of dairy products between their own plants in trucks they owned or leased.

More than 46 percent of the 469 cooperatives that supplied information on transporting dairy products to the wholesale trade reported that they hauled no milk or manufactured dairy products to the wholesale trade in trucks they owned or leased. Thus, they depended on contract haulers and others for such transportation. Over 29 percent of these 469 associations, however, transported all dairy products they sold to the wholesale trade in trucks they owned or leased.

Of the 286 associations that reported on transportation to the retail trade, one-fourth transported none of the dairy products sold to the retail trade in trucks they owned or leased. More than one-half of these 286 associations, however, transported all dairy products they sold to the retail trade in trucks they owned or leased.

Other Publications Available

The Story of Farmers' Cooperatives, Educational Circular 1.

Organizing a Farmer Cooperative, FCS Circular 18.

Multiquart Containers -- Their Significance in Dairy Cooperatives, General Report 54. William J. Monroe.

Grade A Milk Marketing by Manufacturing Co-ops, General Report 56. Donald R. Davidson.

Seasonal Milk Pricing Plans, Bulletin 12. Stanley F. Krause.

Dairy Cooperatives Help Find Markets, FCS Bulletin 1, Reprint 2. Donald E. Hirsch.

Comparing Bulk and Can Milk Hauling Costs, FCS Circular 14. Joseph M. Cowden.

Bulk Milk Handling in 1955, General Report 22. Joseph M. Cowden.

Pricing Milk According to Use, FCS Bulletin 6. Stanley F. Krause.

Meeting Seasonal Problems of Dairy Cooperatives through Education, FCS Bulletin 9. Stanley F. Krause.

Selling Milk . . . Ideas for Cooperative Managements, FCS General Report 20. Donald E. Hirsch.

A copy of each of these publications may be obtained upon request while a supply is available from --

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